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VALUATION OF ALGORITHMS IN TRANSFER PRICING

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ABBREVIATIONS

APA	Advance Pricing Agreement
BEPS	Base Erosion and Profit Shifting
CAC	Contributory Asset Charges
CAP	Capital Asset Pricing
CBD	Cross-Border Dialogue
CF	Cash Flow
CFC	Controlled Foreign Companies
CPL	Cost Plus Method
CUP	Comparable uncontrolled price method
DCF	Discounted Cash Flows
EBIT	Earnings Before Interests and Taxes
EBITDA	Earnings Before Interest, Taxes, Depreciations and Amortizations
EV	Enterprise Value
EU	European Union
FCF	Free Cash Flows
HTVI	Hard-To-Value Intangibles
KHO	Korkein hallinto-oikeus (Supreme Administrative Court)
MAP	Mutual Agreement Procedure
MPEEM	Multi-Period Excess Earnings Method
MRCS	Map Route Control System
NPV	Net Present Value
OECD	The Organization for Economic Co-operation and Development
PSM	Profit Split Method
RFR	Relief from Royalty
RPM	Resale Price Method
RRR	Required Rate of Return
SKCS	Situation Knowledge Control System
TFEU	Treaty on the Functioning of the European Union
TNMM	Transactional Net Margin method
WACC	Weighted Average Cost of Capital
WARA	Weighted Average Return on Asset

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ABSTRACT:

The purpose of this study is to make valuation of intellectual properties in transfer pricing in global organization. The target of valuation is two algorithms in research and development projects, which are utilizing artificial intelligence and machine learning technology, and both will come into commercial use, but the valuations only come into internal use. The transfer pricing is used in intra-group transactions and fiscal reasons the valuation of algorithms must follow arm's length principle. An essential principle in transfer pricing is that it must be following arm's length principle. That means the target of transfer pricing should set the price like it would be on sale for anybody in the open market. The making of valuation of algorithms is complicated and challenging due its uniqueness. There are not necessarily comparable algorithm technologies exist or it is not available in the open market where they could be compared in transfer pricing.

For the successful value determination of algorithms is to make familiar with valid Finnish legislation and OECD guidelines of transfer pricing. In addition, the study requires the practical knowledge of valuation methods of transfer pricing and researching relevant material received from case organization. There are several methods to make valuation about algorithms, so the choice of right method and good argumentation by using substance is important for reaching enough mutual understanding with tax authority. The empirical studies require interviewing the relevant personnel of the company, utilizing current financial data and using the previous theoretical substance what has brought out in the study. When the taxpayer and tax authority have same insight about fair value of the target of transfer pricing, thus both parties avoid amendment of assessments, disagreements and disputes. It can cause also unnecessary extra work for both parties and may cause damage to organization's reputation in public.

The case study will be done for Finnish affiliated company, which parent company has been registered and located abroad. Valuation will be done both licensing and transferring of all rights ways. The Finnish case company develops constantly new technologies in research and development projects thus they must know how to make value determination for technologies if they are going to transfer of all rights or license their intellectual properties inside the consolidated organization. This study gives a good clearance about transfer pricing methods, rules and necessary legislations where they must pay attention when planning transfer pricing of intangible assets.

KEY WORDS: Intellectual property, intangible assets, transfer pricing, taxation, valuation, algorithms

1 INTRODUCTION

1.1 Transfer pricing from the multinational organization's point of view

Global trade has increased significantly many decades and seeking the growth over the country borders is completely normal business. International trade is not only for global giant companies' business area, but even more small and middle size companies' usual operative business. Global organizations may have expanded their businesses by acquiring or establishing legal entities or joint ventures to new countries as a part of their current strategy.¹ In these type of cases it is very important to understand whether they compose consolidated company or not and understand who has an actual control over another entity.²

In order to make business more cost-effective, multinational organization might centralize some their business functions to different legal entities. Also, critical production factors and markets can locate in different countries than production. Costs from production, delivery, marketing, research and development, supply chain management and so on can be spread widely between different countries, but only one legal entity gathers all the profits from selling to clients.³ The problem is also the selling function or organization does not carry the risk the same way than previous organization in supply chain. This kind of casting defect can be fixed by transfer pricing the accrued costs or fair price from legal entities that belong to the same consolidated company. Then transfer pricing can be necessary and fair way to manage financial transactions.⁴

It is an important to know what expenditure, what income and what amount must be considered when calculating the taxable income of each group entity, from the point of view of taxation. Especially, it is important to determine the right income in the international consolidated group because the correct allocation of revenue and expenditure in the right amount influences the tax revenue of the different countries in the units of intra-group.⁵

¹ Jaakkola et al. 2012: 19

² Kukkonen & Walden 2016: 20

³ Raunio & Karjalainen 2018: 159-160

⁴ Raunio & Karjalainen 2018: 69

⁵ Helminen 2018: 265

1.2 The importance of intellectual property rights in business

In most business areas, companies have invested heavily in the development of intangible rights, and nowadays they are becoming increasingly involved in the balance sheet of many large companies. This is because by investing in intangible rights, an enterprise can significantly increase its market value from its present value.⁶ In young companies, the growth assets can make up a huge part in valuation.⁷ An increasing part of the market value of large multinational companies has accumulated in the income expectations of intangible assets.⁸ A company can embed a significant amount of costs in the development of intellectual properties, but the accumulated costs do not necessarily reflect the true value of the intellectual properties. Their market value can be much more than their accumulated cost.⁹

Investing in the brand and technology has been found to significantly increase the value of the company. Investing in technology results in creating innovation and gaining a competitive advantage and investing in the brand, making it easier to get direct investment from investors.¹⁰ Thus, investing in intangible assets can also be of strategic importance.¹¹ Especially strong brand is an advantage in selling to consumer business.¹² The importance of intangible rights in tax planning has also been gradually understood. The specific characteristics of intellectual property rights and their life-cycle phases allow for very complex tax planning but can also lead to lock-in effects that need to be prepared in good time.¹³

⁶ Markham 2005: 58

⁷ Damodaran 2009: 8

⁸ Contractor 2001: 25

⁹ Jaakkola et al. 2012: 209

¹⁰ Contractor 2001: 321–322

¹¹ Contractor 2001: 322

¹² Contractor 2001: 321

¹³ Collin et al. 2017: 673–674

1.3 What are the transfer pricing and algorithms? Where they are used for?

Transfer pricing is transaction between two organizations that belongs to the same consolidated company. Common feature for these organization is that they have same business interest and that come into existence when one or other party has control over another company.¹⁴ Typically intra-group transactions may concern tangible assets, intangible assets, services or financing. Tangible assets can be fixed assets or current assets and intangible assets can be for example immaterial rights, technology and software.¹⁵ Transfer pricing can be used not only to balance incomes, expenses and risks between intra-group companies, but also for tax planning in intra-group organizations, which are located in different countries.¹⁶ However, tax planning is not meant to allocate taxation to places where tax treaty is softer or take an advantage of tax arbitrage. (BEPS)¹⁷

Transfer pricing must be generally done by using arm's length principle to avoid Base erosion and profit shifting (BEPS).¹⁸ The arm's length principle means intra-group business transactions should done same terms of conditions and sold same price as they would not be part of same consolidated company. This means the target of the transfer pricing could buy anybody from the open markets.¹⁹

Applying the arm's length principle may cause some problems in practice. Intra-group companies do the business with that kind of products and articles which are not exists in the open markets. Typically, they are semi-finished products which are done only for further processing in that business, but they can be also existing products, which make adequate different in features from other products in open that cannot use the same price in transfer pricing.²⁰ Although the intra-group companies would do the business with products which are available from open market, they can arrange their organization structure and deals in a way, where independent parties would never do. This is acceptable in

¹⁴ Jaakkola et al. 2012: 21, 31

¹⁵ Raunio & Karjalainen 2018: 151

¹⁶ Raunio & Karjalainen 2018: 48; 80; 241

¹⁷ Peterson 2016: 121

¹⁸ Peterson 2016: 121

¹⁹ Raunio & Karjalainen 2018: 46

²⁰ Raunio & Karjalainen 2018: 47

taxation too, because they have common business interest and financial reasons to improve their business.²¹

For every reader to understand what algorithms all are about, algorithms are generic sets of commands implemented in a programming language. However, the programming language is not the decisive factor in producing algorithms, as the ideas and operating methods generated by the algorithms can be implemented in the same way in several programming languages.²²

Instead, the decisive factor in algorithms is the content, meaning, and position of each command line relative to other command lines. Thus, the command lines in the algorithms must match with the other commands and look at how it adapts to the entire algorithm. Even a slight mistake, lack or change can make the algorithm unusable or significantly change its usability. Also, programming languages, algorithms, and other implementation techniques must be compatible with each other so that the entity works as desired.²³

²¹ Raunio & Karjalainen 2018: 47-48

²² Kokkarinen & Ala-Mutka 2002: 15

²³ Kokkarinen & Ala-Mutka 2002: 15-16

2 RESEARCH WORKING

2.1 The purpose and target of the research

The purpose of the study is to make valuation for two algorithms that are given by case organization. Valuation will be done both transferring of all rights and licensing ways for both algorithms. The target in the research is to give valuation for algorithms that they could use them in case of planning transfer pricing with another subsidiary or parent company and teach case organization how to make valuation for this type of intellectual property.

Furthermore, this is to represent what rules, guidance and laws they must consider not only planning but also implementing transfer pricing in consolidated company. No one has previously done valuation and transfer pricing for study algorithms of case organization, then they don't have proper knowledge about transfer pricing and making of valuation.

2.2 Framing of research problem

Focus of the study will be in a valuation of two separate algorithms, which are used as part of research and development projects in case organization. Empirical studies will be utilized all that information about the algorithms which is available then from the case organization and the results will be given based on them. Outside of research problem is outlined all the others intellectual property or intangible assets than these two algorithms. Case study does not consist of planning or implementation of documentation of transfer pricing, which liable to pay taxes proves its transfer pricing following arm's length principle.

Legal and regulation studies will be restricted to Finnish legislation, tax law of European Union and OECD guidance of transfer pricing and case organization's registered legal entities belong to the European Economic Area in the research, thus studies do not have to extend that further. The research does not include the presentation of the dispute reso-

lution procedure process if there is a disagreement between the taxpayer and the tax authority on the delivery of the tax. Also, the research does not go further into the tax adjustment by the tax authority or taxpayer than described in the Finnish the Act on Assessment Procedure, Section 31 or the OECD Transfer Pricing Guidelines. In addition, the treatment of value added tax (VAT) on transfer or licensing transactions in domestic or international trade are not going handle in the study.

2.3 The research methods

Research method will be coming combination of qualitative, quantitative and partly justice legal dogmatical. Studying the problem areas requires in-depth understanding of the right issues and proper familiarizing with the substance. Qualitative method will be used when introducing results of interviews of case organization's personnel related to transfer pricing process. Qualitative research aims to describe a reality, which can be considered a complex and ambiguous completeness including mutual factors and relationships.²⁴

Quantitative method will be used when valuating algorithms. Research will be shown what the methods are going to use in valuation and how they are concluded in mathematically or statistically. Quantitative research is based on theories and previous studies and the conclusions drawn from them. In quantitative research, the aim is to give priority to the laws of cause and effect. This refer to study how different things affect each other. In quantitative research, things are studied primary statistically and data is presented numerically.²⁵

The study can be seen also methodologically as legal dogmatical study when introducing and analyzing some sections from the Act on Assessment procedure and paragraphs from OECD guidance related to Model Tax Conventions. In legal science, legal logic means the interpretation of legal rules and the right to text.²⁶ In general, it is studied a valid law in a prevailing legal community. That received information from the different source of

²⁴ Hirsjärvi et al. 2007: 161

²⁵ Hirsjärvi et al. 2007: 140-141

²⁶ Husa 2013: 91

law, what has been studied in legal context, it is interpreted in many interpretative methods. The legal dogmatic is the oldest field in legal theory and it strives for responding the content of valid legal system.²⁷

2.4 The structure of the research and introducing research process

Study starts by introducing what is transfer pricing and what it means from the point of multinational organization's view, gives some reasons for why intellectual properties are so important assets for companies nowadays and why intellectual properties' significance have risen so much in recent years. At the beginning, it also introduces what does mean arm's length principle and why it is important in transfer pricing.

After that, the study is going to get to know national legislation related to transfer pricing and applying preliminary ruling from the Finnish Tax Authority. The purpose is to represent Act on Assessment Procedure, section 31, which relates to transfer pricing adjustment and Act on Assessment Procedure, section 85, which covers applying a preliminary ruling from the Finnish Tax Authority. It can become an issue for case organization related to transfer pricing. Furthermore, the study highlights some of the decisions of the Supreme Administrative Court concerning transfer pricing and valuation.

Next is the international law on transfer pricing. It begins with the presentation of EU tax law and its relationship with national tax law. Then it is time to introduce tax treaties and their relationship with national tax law and EU tax law. At the case organization's request for the study has brought out the APA procedure. The APA procedure tells you what it is and who can apply for it and what the benefits are. After that, the second dimension of international transfer pricing is the OECD Model Tax Convention. These model tax treaty articles define different terms, guidelines, and mutual operational procedures between the countries that Finland is committed to follow.

²⁷ Husa 2013:91

After international transfer pricing section, it is time to introduce transfer pricing methods to later compare and select the most appropriate transfer pricing methods for the case organization. Transfer pricing methods are selected for both transferring of all rights and licensing situations separately. In both cases of transfer, it is important to be able to choose the appropriate transfer pricing method for the valuation. It then introduces what is meant by transferring of all rights and licensing so that the reader will not be left unclear about how they differ from each other.

After this, the study returns to the research problem and briefly introduces the case organization and these algorithms that are subject to the transfer pricing. Case organization staff will be interviewed for research and if needed, they will be asked for external data to carry out the research. For the interview, questions are prepared in advance and the most appropriate transfer pricing method is chosen based on the answers. Possibly, the study will have to slightly compare the methods with each other in order to state some method being the most appropriate for the situation.

Once the study has identified the most appropriate method of transfer of all rights and the licensing situation, then the valuation of algorithms will be implemented. Some sensitivity analysis is going to carry out on the results of the valuation study to assess its reliability. After that, conclusions are drawn from the research results and at the end, summary will be written from the study.

3 LEGISLATION, RULES AND GUIDANCE OF TRANSFER PRICING AND PRELIMINARY RULING

3.1 The Finnish legislation

3.1.1 Act on Assessment Procedure about transfer pricing

There are some laws in Finnish regulation, which may apply to transfer pricing. Transfer pricing is often monitored through the Act on Assessment Procedure Section 31§, which regulates transfer pricing adjustments. The latter section immediately concerns transfer pricing.²⁸ Section 31 of the Act on Assessment Procedure is the primary decree about transfer pricing thus it is presented first. Furthermore, Act on Assessment Procedure Section 14 a-c§ regulates about documentation of transfer pricing, but it is not going to be handled in this case study.

In English, section 31 of the Act on Assessment Procedure could be translated as follows:

“If the transaction between the taxpayer and for him a related party has agreed to the terms and conditions or the prescribed conditions that deviate from what each other would be made between independent parties, and the taxpayer's business activities, or other activities taxable income has therefore been smaller or loss has become greater than it would otherwise be has been added, the amount that would have accrued in meeting the conditions agreed between the independent parties would be added to the income.

The parties to the transaction are related if the counterparty to the transaction has control over the other party or the third party alone or together with its related parties has control over both parties to the transaction. A party has control over another party when:

1) It directly or indirectly holds more than half of the capital of another party;

2) It directly or indirectly to more than half of all the shares or portions of the second party the votes;

²⁸ Collin et al. 2017: 560

(3) Has the right, directly or indirectly, to appoint more than half of the members of the board of directors of another entity or a comparable institution or institution having that right; or

4) It is passed jointly with the other party, or it may otherwise effectively control the other Party.

The provisions of subsection 1 shall also be observed in actions between the company and its permanent establishment.”²⁹

The price according to arm's length principle is indirectly presented in section 31 without being specifically mentioned. Section 31 is based on the OECD Transfer Pricing Guidelines and the Model Agreement, which defines the arm's length principle. The main content of the law is that the Finnish taxpayer's taxable income may be adjusted if the transactions with the foreign community of interests different from the arm's length principle, and so should be done with an independent party.³⁰

For the purpose of applying the law, the parties must be related, i.e. either party has direct or indirect control over another, expenditure or losses would be higher than market conditions, and the receiving company is not a taxable entity in Finland. If the taxable income between affiliated entities would be lower and the losses or expenses exceeded the independent conditions, the difference between the market price and the realized price could be adjusted to taxable income.³¹

3.1.2 Act on Assessment Procedure about preliminary rulings from Finnish Tax Authority

In English, section 85 of the Act on Assessment Procedure could be translated as follows:

“The tax administration may, on written application by a taxable person or a group, issue a preliminary ruling on income tax.

The preliminary ruling is given for a fixed period. However, it shall be granted for a maximum tax year ending no later than the calendar year following the date

²⁹ the Act on Assessment Procedure, Section 31§

³⁰ Collin et al. 2017: 634

³¹ Collin et al. 2017: 634-635

of the preliminary ruling. A preliminary ruling will not be given if the relevant application is pending before the Central Tax Board or the Central Tax Board has decided.

The application must indicate the individual question which is to be referred for a preliminary ruling and provide the necessary clarification. The application must be made before the end of the period for which the tax return is issued.

The tax administration, at the request of the taxable person or the group, has to comply with the final decision on the issue of taxation.”³²

The above text describes what the Finnish legislation says about the preliminary ruling procedure. The preliminary ruling procedure can be used to resolve tax problems before the tax is delivered and the transaction is implemented. Taxpayers can plan their tax in advance. The procedure allows the taxpayer to recognize and eliminate tax risks in advance, otherwise it can cause significant unexpected and harmful tax consequences. In addition, the procedure is part of the taxpayer's legal protection.³³

In most cases, a comprehensive description of the facts is enough in preliminary rulings, but documentary evidence could also be supported. There is no mention in the Tax Procedures Act of the documentary evidence supporting the application. However, the facts set out in the preliminary ruling must be true. Thus, it is possible to decide without challenging the facts presented in the application. The validity of the conditions and information given in the application is tested as necessary, but some documents can often be requested to support the application.³⁴

3.1.3 The preliminary rulings of the Supreme Administrative Court.

The Supreme Administrative Court collects the key decisions from the point of view of legislation in its annual book, which it publishes mainly as written. A written annual book is published in order to remain legal security and conformity of law.³⁵ The Supreme

³² the Act on Assessment Procedure, Section 85§

³³ Myrsky 2011: 165-166

³⁴ Collin et al. 2017: 877

³⁵ Myrsky 2011: 75

Administrative Court makes judgments for appeals given by tax administration and Administrative Court or Central Tax Board if the taxpayer or the tax enforcement unit is not satisfied with the preliminary ruling and want to receive an adjustment to the decision.³⁶

Although the preliminary rulings are always the solution to the individual case, it can be assumed to be applicable to other similar cases.³⁷ This principle of law is called precedent.³⁸ Preliminary rulings by the Supreme Administrative Court play a major role in tax planning, because tax planning is often accompanied by tax uncertainty about the interpretation and application of the law and other tax risks.³⁹ Thus, tax effects must be predictable before the taxpayer's operation will be implemented.⁴⁰ Hence, unexpected tax risks are eliminated if the taxpayer acts as it has presented its operating and the prevailing circumstances remain the same.⁴¹ There are some recent judgments provided by the Supreme Administrative Court of Finland for the pricing of intellectual property rights, intra-group services and valuation of assets on balance sheet that are presented more in this section.

In Case KHO 2018:173, The A Group was involved in the construction business by manufacturing and selling building insulation materials, which were mainly used in the walls and ceilings of apartment buildings and terraced houses. The Group's internal business operations included the sale of finished products and raw materials, as well as the licensing of intangible rights to other Group companies, for which the company charged each member of the Group.

The market price comparison method was used as a market-based method for the charging of intellectual property license fees and as a resale price method for the sale of finished products. From these intra-group transactions, the company had made the necessary documentation to verify market conditions. However, the tax administration did not consider the intra-group transactions to be market-based because, in their view, the comparative

³⁶ Myrsky 2011: 65–66, 179

³⁷ Myrsky 2011: 154

³⁸ Myrsky 2011: 167

³⁹ Myrsky 2011: 164, 173

⁴⁰ Myrsky 2011: 165–166

⁴¹ Myrsky 2011: 165, 169

contract data differed significantly from competitors so that they could not be used as benchmarks. In the case of finished products, only four competitors were comparable in comparison, and only one company sold similar products to Group A companies.

The Supreme Administrative Court held that the Group A company had used transfer pricing methods appropriate to the transactions and that, in the circumstances of the then tax years, the company had sufficiently performed the documentation to verify the market condition, and the transfer pricing information reported in the tax return could not be considered incorrect.⁴²

In case KHO 2017:146, A Plc had delivered to its subsidiaries supply chain services, marketing and brand management services, as well as personnel and computer services, which were mainly responsible for coordinating and harmonizing the operations of the group companies. The subsidiary had paid the parent company A Plc an amount equal to the cost of the services without any extra return.

However, after the tax audit findings, the tax administration decided to add a 7% profit surcharge on these intra-group service charges, which had been confirmed during the tax audit based on a search by Bureau van Dijk of the Amadeus database. Nine independent consultancy companies were served as benchmarks. Thus, the tax was subsequently adjusted to the detriment of the taxable company A Plc.

The Supreme Administrative Court held that A Plc should have been charged, in addition to an amount equal to the cost of providing the services provided by the Group companies, a surcharge to comply with the arm's length principle. Since the services provided by the independent consultancy companies and the parent companies of the groups differ in such a way that the differences significantly affect the amount of profit on the free market, the profit margin could not be determined based on the profit level of the external benchmarks.

⁴² KHO 2018:173

According to the Supreme Administrative Court, the market-based profit margin was to be determined on the basis of the benefit received from the services of the parent company A Plc. Taking into account the explanation of the nature of the services offered to subsidiary by A Plc, the amounts of the surcharges added to the A Plc company's taxable income were reduced to corresponding of a profit margin of 3 percent. Tax years were 2005-2007.⁴³

The case KHO 2017:145 is very much like a similar case to the one mentioned earlier in KHO 2017:146. A Plc had established a subsidiary, B ltd, which had licensed an ERP (Enterprise Resource Planning) system from an external supplier whose functional properties had been determined by B ltd for the needs of the A Group. In accordance with the Group's internal service agreement, B ltd was supposed to develop the ERP system, acquire the necessary software licenses, hardware, office and consulting services, and provide the Group companies with the necessary services related to them. For these measures, B ltd was subject to a wide range of costs, which it charged to other Group companies as a service charge, adding to them the profit margin that they themselves determined. Service fees were charged from 2006 onwards after the Group company had taken over the ERP system for its daily use.

However, the tax authority considered that B ltd should have invoiced each group company for the costs incurred by B ltd and not afterwards. Thus, according to the tax administration, taxation was adjusted for the tax years 2005-2009. In that case, the taxable income of B ltd had been increased by the amounts that had not been charged during the previous tax years.

The Supreme Administrative Court held that the introduction of the ERP project was allowed and did not involve in any way. According to them, it could be implemented between independent parties. For the fiscal year 2005, the Supreme Administrative Court annulled the decisions of the Administrative Court and the Tax Adjustment Board, as well

⁴³ KHO 2017:146

as the post-tax taxation of B Ltd, as the other A-group companies had done the ERP system implementation in their own operations step by step from the 2006 tax year. However, the Supreme Administrative Court did not take a stand on the tax years 2006-2009, but the issue was returned to the tax administration to determine the market condition of B Ltd.'s service charges. Tax years were 2005-2009.⁴⁴

In case KHO 2014: 33, The Finnish limited company A, which belonged to the Norwegian group X, sold the entire share capital of its Finnish company B in May 2004 to Norwegian company C. On the same day, the Norwegian company C sold the entire share capital to a third subsidiary, subscribing for C ASA shares. The valuation of B Ltd.'s shares had been made by an external auditing company and the cash flow method was used as the valuation method, which estimated and discounted future cash flows to present value.

In the tax audit, the tax authority had considered the transaction price of the transaction at EUR 62 million below its fair value, resulting in an unjustified financial gain in taxation. The tax administration had therefore imposed a tax increase of EUR 620,000 on A for the 2004 tax year.

Various variations of the cash flow method had been made and ultimately resulted in the calculation of the median variables, which resulted in a lower value for price determination than for small or large growth expectations. According to the Supreme Administrative Court, the value of the median variables used in valuation deviated significantly from the actual value of the company, and they would not have agreed on the value of the assignment in terms of value. This was because the values of the key figures used in the median cash flow calculation were not sufficiently detailed, from where they were derived. However, the Supreme Administrative Court stated that the net present value method as such was an acceptable method of valuation.

⁴⁴ KHO 2017:145

There were no data available for similar transactions, and the net present value method was not able to reliably demonstrate the true value of the company. In this case, the Supreme Administrative Court paid attention to the balance sheet of the Company B, which consisted of a significant amount of financial assets, whereby the fair value of Company B had to be determined according to the net asset value of the balance sheet. Compared to the balance sheet, the sales price of company B could not be considered as a market condition prior to the transaction or even after the transaction. Thus, the Supreme Administrative Court found the tax administration's tax increase to be acceptable and justified. Subsequently, the tax increase was removed in the case of post taxation, since the issues at issue could be interpreted as ambiguous and the efforts made by Company A to investigate the market value of the purchase price. Tax year was 2004.⁴⁵

In case KHO 2013: 36, A Plc formed a group that had business in several countries in Europe. The company had, inter alia, a subsidiary B Ltd in Estonia. These group companies were divided into planning, manufacturing and distribution. Innovative manufacturing solutions were developed in Estonian companies, which are not yet available in other Group companies.

The company operating in Finland owned the whole raw materials, semi-finished products and finished products during the production process and the commodity was only transported to production units in other countries for further processing before it was delivered to a company operating in Finland. Subsidiaries operating in Estonia and elsewhere charge only service fees from the Finnish parent company. Service fee was including only direct costs, profit margin and local saving costs. Mutual transfer pricing was implemented with the transactional net margin method and a half of local savings costs were also defined for the transferring the business from the more expensive manufacturing country to another country where is cheaper labor force.

Company A Plc had reduced the cost of income tax, profit margin and local cost savings.

⁴⁵ KHO 2014:33

However, the tax authority considered that only the actual costs and the profit margin calculated for them were tax deductible. According to the OECD guidelines, in some situations transfer pricing can be accepted as part of the cost base of products, and A Plc relied on OECD guidelines to increase cost savings in transfer prices.

According to the Supreme Administrative Court, A Plc and its subsidiaries were not able to incorporate local cost savings into their costs because of the differences in their operations. Thus, the situation and principles described in the OECD Transfer Pricing Report did not correspond to the arrangement between A Plc and its subsidiaries. Consequently, the Supreme Administrative Court held that A Plc could not include local savings costs in the transfer pricing costs and the company A Plc could deduct only the actual costs and the profit margin in taxation. Tax years were 2004-2005.⁴⁶

3.2 International taxation

3.2.1 Tax Law of European Union

In 1995, the establishment of the European Union and Finland's accession to the European Union, in addition to Finnish tax legislation, brought about national legislation and a tax treaty, which is the third area of EU tax legislation.⁴⁷ EU tax law rules restrict Finland's and other EU states' independent taxing rights mainly in situations where a tax object or a tax subject has a connection to another EU country in addition to Finland or the other EU state concerned. Apart from some exceptions, EU tax law rules apply throughout the EU. The entire Finnish territory is also covered by the EU tax law on direct taxation⁴⁸

EU law is directly applicable to national foreign tax law, even though in direct taxation the competence lies with the Member States if it has not been transferred to the EU. The part of EU law on taxation is called EU tax law and it is part of EU law. There are some supranational principles in EU law. One of the key principles of EU law is the primacy

⁴⁶ KHO 2013:36

⁴⁷ Helminen 2018: 21

⁴⁸ Helminen 2018: 24

(priority principle) that, in the event of a conflict between a Member State and Community law, EU law must be given priority.⁴⁹ The purpose of EU tax law is to remove tax barriers in the internal market in EU.⁵⁰ The national legislation of the Member States or their mutual agreements cannot conflict with EU law. In EU law, this means that the provisions of national tax legislation and tax treaties may not supersede EU law when EU law results in a less favorable outcome for the taxable person.⁵¹

EU law can be divided into primary and secondary law. Primary law includes EU treaties, including the TFEU.⁵² The TFEU is the most important tax treaty.⁵³ As a primary right, it defines the prohibition of discrimination, the freedoms and the aid rules in the Member States covered by the agreement as regards taxation. Freedom of movement includes the free movement of goods, labor and capital, the free provision of services and the freedom of establishment. Secondary law includes regulations, directives and decisions of the Community institutions. There are issued a few directives in EU tax law on direct taxation and they have mainly dealt with the prevention of tax evasion and the elimination of double taxation.⁵⁴

However, the removal of barriers to the internal market is not without exception, although the principle of a lesser standard must be applied first. EU legislation that requires taxation or refusal to admit tax benefits despite less favorable national legislation or tax treaty provisions has increased. By way of example, a binding tax evasion rule introduced into the Parent-Subsidiary Company Directive should be applied, irrespective of the less stringent norms of national law or tax treaty.⁵⁵

3.2.2 Relevance of arbitration agreements

⁴⁹ Malmgrén & Myrsky 2017: 33

⁵⁰ Helminen 2018: 24

⁵¹ Malmgrén & Myrsky 2017: 33

⁵² Malmgrén & Myrsky 2017: 33

⁵³ Helminen 2018: 24

⁵⁴ Malmgrén & Myrsky 2017: 33

⁵⁵ Helminen 2018: 28

In order to reduce the tax problems associated with transfer pricing, EU countries have signed a multilateral arbitration agreement to eliminate tax evasion and multiple taxation due to transfer price adjustments.⁵⁶ Tax agreements also aim to prevent zero taxation and tax evasion and avoidance. Tax agreements are a part of Finnish national legislation when they are enacted and enforced under the national provisions of the Contracting States.⁵⁷ The exchange of information is also an essential part of tax treaties.⁵⁸ In addition, the Council of the European Union and the EU Member States have issued a Statement of Conduct on Transfer Pricing Documents for Related Companies.⁵⁹ The Finnish tax agreements are in accordance with the OECD Model Tax Convention.⁶⁰

However, in bilateral tax treaties, the details of what is defined in the OECD Model Tax Convention can be more precisely defined. Member States may have their own interests in drawing up tax agreement and want to bring out them in the tax agreement.⁶¹ Tax agreements can cover either a limited or extensive exchange of information, but the exchange of information must be in accordance with local legislation.⁶²

Due to the diversity of intra-group transactions, situations arise where group companies and tax authorities in different countries do not agree on how and to what extent different income and expenditure should be allocated to units located in different countries, where group company operate. Such disagreements with tax administrations cause a risk of international multiple taxation.⁶³

The tax treaty must determine which party has the right to collect tax on the income of the taxable person. In principle, the income is distributed either between the State of residence or the source state and only one to the income generated by the right to tax in order to avoid double taxation. In this case, the other party exempts the taxable person from

⁵⁶ Helminen 2018: 266

⁵⁷ Malmgrén & Myrsky 2017: 30

⁵⁸ Äimä 2017: 378

⁵⁹ Helminen 2018: 266

⁶⁰ Äimä 2017: 378

⁶¹ Äimä 2017: 378

⁶² Äimä 2017: 379

⁶³ Helminen 2018: 266

taxation on its income.⁶⁴ Member States may agree on the allocation of the right to tax even if the taxation of the other Contracting State is stricter than the other.⁶⁵

The arbitration agreements guarantee a protection for intra-group companies that the transfer pricing adjustment does not result in double taxation. The arbitration agreements regulate mutual agreement procedures and set a compulsory judgement for an involved authority. For example, if the Finnish company thinks their intra-group company in the transfer pricing adjustment in another country has been treated unreasonable or wrong way, the Finnish authority may retrial the case and give a non-appealable judgment, regardless of legal remedy, which may belong to the company according to local legislation.⁶⁶

3.2.3 Advance Pricing Agreement (APA)

The market pricing of transfer pricing is in the most cases the major tax concerns of multinational companies. The subsequent adjustment of transfer pricing consumes the company's resources and is harmful to the company's profitability, operations and reputation if disagreements with the tax authority end up in the public domain.⁶⁷ Furthermore, transfer pricing adjustments may result in tax payer's double taxation.⁶⁸ There is no separate regulation on APA in Finland, nor any other guidance.⁶⁹

The APA method can be used to apply for a tax ruling in practice to any transfer pricing object.⁷⁰ In order to verify price, transfer pricing methods, the use of comparative data or anything else relevant criteria for future transaction, which follows arm's length principle, companies can pre-negotiate with the tax authority on the valuation of transactions that binds both parties. This method is called a one-sided advance pricing agreement. In ad-

⁶⁴ Malmgrén & Myrsky 2017: 93

⁶⁵ Helminen 2018: 43

⁶⁶ Jaakkola et al. 2012: 58

⁶⁷ Choi & Meek 2005: 484

⁶⁸ Markham 2005: 232

⁶⁹ Jaakkola et al. 2012: 347

⁷⁰ Markham 2005: 232

vance agreement, the company presents to the tax authority its plan, the value of the valuation and its valuation method, and thus receives legal protection against the subsequent changes when the company acts as presented.⁷¹ The tax authorities may charge a fee for the APA procedure and the amount of the fee may vary considerably between different tax authorities. The APA procedure mainly concerns large multinationals and many small and medium-sized enterprises are exempted from the APA procedure or the fee of APA procedure.⁷²

The APA procedure may also be agreed between the tax authorities of two or more countries and the taxable person, but the tax agreements of the tax authorities of the countries must also be considered. Pre-agreements under the APA procedure should therefore be based on a mutual tax treaty. The multilateral tax treaty method is applied at least between the Nordic countries, which makes easier the transfer pricing procedure in the Nordic countries.⁷³

Obtaining certainty with other EU countries is not necessarily straightforward.⁷⁴ Often, countries' tax authorities may have a different view of arm's length principle on transfer pricing and it may be difficult to reach a consensus. Thus, not all countries even allow multinational tax treaties to be concluded, but APAs are only concluded between a taxable person and two Member States.⁷⁵ Pre-tax treaties often rely on Article 25 of the OECD Transfer Pricing Guidelines, which is presented in the next section.⁷⁶

3.3 OECD Guidance of transfer pricing

3.3.1 OECD Guidance in general

The consistency of the structure, content and application of agreements are important part of tax agreement negotiations. Many countries, including Finland, consider OECD Model

⁷¹ Choi & Meek 2005: 484; Helminen 2018: 276

⁷² Jaakkola et al. 2012: 347

⁷³ Helminen 2018: 276

⁷⁴ Helminen 2018: 276

⁷⁵ Markham 2005: 233-234

⁷⁶ Helminen 2018: 276

Tax Convention as a base of tax contractual negotiations and thus facilitates tax negotiations. However, states modify the provisions of the OECD Model Tax Convention so that the individual country model tax treaty, which is the starting point for contractual negotiations, considers national tax legislation.⁷⁷

The OECD model tax treaty is basically not a treaty, but an approach applied by OECD member states to find common solutions, including the elimination of double taxation. Thus, for example, the amendments to the articles of the Model Tax Convention do not automatically change the individual tax treaties between states, so the changes in the agreement must be negotiated between the involved states.⁷⁸

In different Member States, there are rules and practices based on the OECD Transfer Pricing Guidelines which documents intra-group company must submit to its tax authorities on its transfer pricing policy. The requirements of the different EU countries differ considerably in practice. In several countries, a multinational group must take all these requirements into account in its documentation. Transfer Pricing Documentation aims to demonstrate that intra-group transactions are following arm's length principle in transfer pricing and providing taxpayers with protection against retrospective adjustments to transfer pricing by tax authorities.⁷⁹ However, the documentation of transfer pricing is not going to handle in this study.

3.3.2 OECD Model Tax Convention, article 7

The article 7 of the current OECD Model Tax Convention is as follows:

“The following is the text of Article 7 and its Commentary as they read before 22 July 2010. That previous version of the Article and Commentary is provided below for historical reference as it will continue to be relevant for the application and interpretation of bilateral tax conventions concluded before that date.

Business profits

⁷⁷ Malmgrén & Myrsky 2017: 30

⁷⁸ Malmgrén & Myrsky 2017: 31

⁷⁹ Helminen 2018: 267

1. *The profits of an enterprise of a Contracting State shall be taxable only in that State unless the enterprise carries on business in the other Contracting State through a permanent establishment situated therein. If the enterprise carries on business as aforesaid, the profits of the enterprise may be taxed in the other State but only so much of them as is attributable to that permanent establishment.*

2. *Subject to the provisions of paragraph 3, where an enterprise of a Contracting State carries on business in the other Contracting State through a permanent establishment situated therein, there shall in each Contracting State be attributed to that permanent establishment the profits which it might be expected to make if it were a distinct and separate enterprise engaged in the same or similar activities under the same or similar conditions and dealing wholly independently with the enterprise of which it is a permanent establishment.*

3. *In determining the profits of a permanent establishment, there shall be allowed as deductions expenses which are incurred for the purposes of the permanent establishment, including executive and general administrative expenses so incurred, whether in the State in which the permanent establishment is situated or elsewhere.*

4. *Insofar as it has been customary in a Contracting State to determine the profits to be attributed to a permanent establishment based on an apportionment of the total profits of the enterprise to its various parts, nothing in paragraph 2 shall preclude that Contracting State from determining the profits to be taxed by such an apportionment as may be customary; the method of apportionment adopted shall, however, be such that the result shall be in accordance with the principles contained in this Article.*

5. *No profits shall be attributed to a permanent establishment by reason of the mere purchase by that permanent establishment of goods or merchandise for the enterprise.*

6. *For the purposes of the preceding paragraphs, the profits to be attributed to the permanent establishment shall be determined by the same method year by year unless there is good and enough reason to the contrary.*

7. *Where profits include items of income which are dealt with separately in other Articles of this Convention, then the provisions of those Articles shall not be affected by the provisions of this Article”⁸⁰*

The key point in this article 7 is to determine when an enterprise's income is taxed in another country and not in its State of residence. In order to be taxed in another country, a company must also have a permanent establishment in another country.⁸¹ Thus, if the

⁸⁰ OECD 2017a: 33-34

⁸¹ Jaakkola et al. 2012: 24-25

business is not carried out at a fixed establishment in another Contracting State, the income is taxed only in the State of residence of the beneficiary.⁸² This is important because the State of the permanent establishment has the right to tax on income and profit after expenditure. In Finland, the OECD Transfer Pricing Guidelines apply to such income distribution problems between two or more countries.⁸³

Cross-border arbitration agreements is also relevant to the allocation of tax law, as they ultimately determine how taxable income is distributed between countries. The Arbitration Agreement is only applicable to taxes on income.⁸⁴ Mutual sharing should not lead to double or multiple taxation of income.⁸⁵ From the point of view of income distribution, the income at the permanent establishment is considered following arm's length principle, as if it had been distributed without a relationship of common interest. In that case, both companies would have decided to do business together as independent parties.⁸⁶

The OECD Model Tax Convention recommends a two-step approach to revenue allocation in order to verify market conditions for transactions. First, companies should carry out a transaction analysis and risk analysis of their mutual transactions, and secondly, define their permanent establishment and the risks related to those locations. Subsequently, the transactions between the permanent establishment and the affiliated company located in another state are priced according to arm's length principle.⁸⁷

The total income of a permanent establishment may also be distributed among companies located in different Contracting States if the allocation method can also be applied to the taxation of the foreign company in the source State. However, the allocation method must be implemented in accordance with these principles. Conversely, this means that income from abroad can also be taxed in the country where the company is located. However, such a method is not used in Finland, even though the Arbitration Agreement would make

⁸² Jaakkola et al. 2012: 25

⁸³ Malmgrén & Myrsky 2017: 387

⁸⁴ Helminen 2018: 289

⁸⁵ Helminen 2018: 284

⁸⁶ Malmgrén & Myrsky 2017: 387

⁸⁷ Malmgrén & Myrsky 2017: 387; Jaakkola et al. 2012: 26

such a reference to the method of distribution of income for tax purposes. Finland determines the operating profit of a permanent establishment of such a company in a Contracting State, according to the principle of a separate enterprise. Simply, where the company has a permanent establishment, the income generated there is also taxed.⁸⁸

⁸⁸ Malmgrén & Myrsky 2017: 387

3.3.3 OECD Model Tax Convention, article 9

A significant part of Finland's tax treaties has been concluded in accordance with Article 9 of the OECD. The guidelines for the OECD Model Tax Convention for Article 9 are as follows:⁸⁹

“ASSOCIATED ENTERPRISES

1. *Where*

a) an enterprise of a Contracting State participates directly or indirectly in the management, control or capital of an enterprise of the other Contracting State,

or

b) the same persons participate directly or indirectly in the management, control or capital of an enterprise of a Contracting State and an enterprise of the other Contracting State, and in either case conditions are made or imposed between the two enterprises in their commercial or financial relations which differ from those which would be made between independent enterprises, then any profits which would, but for those conditions, have accrued to one of the enterprises, but, by reason of those conditions, have not so accrued, may be included in the profits of that enterprise and taxed accordingly.”

2. *“Where*

a Contracting State includes in the profits of an enterprise of that State — and taxes accordingly — profits on which an enterprise of the other Contracting State has been charged to tax in that other State and the profits so included are profits which would have accrued to the enterprise of the first-mentioned State if the conditions made between the two enterprises had been those which would have been made between independent enterprises, then that other State shall make an appropriate adjustment to the amount of the tax charged therein on those profits. In determining such adjustment, due regard shall be had to the other provisions of this Convention and the competent authorities of the Contracting States shall if necessary, consult each other.”⁹⁰

⁸⁹ Raunio & Karjalainen 2018: 5

⁹⁰ OECD 2017a: 34-35

Article 9 of the OECD Model Tax Convention is based on the arm's length principle. This means that affiliated companies must do business as if they were independent of each other without a common interest.⁹¹ If this principle is not followed in transfer pricing, the necessary amount of tax can be adjusted. In transfer pricing, taxation can be adjusted by the tax authority of the country to which the taxable person belongs.⁹² The tax conventions concluded by Finland are based on these OECD Transfer Pricing Guidelines with other countries and include this market principle.⁹³

The tax jurisdiction of the Finnish tax authorities is always based on national legislation and cannot be extended by tax treaties between countries.⁹⁴ The tax treaties do not take a stand on whether some income is taxable or expense deductible, but it is agreed which of the two parties is entitled to tax. Instead, the amount of tax, the deductibility of expenses and the determination of taxable income are part of national legislation.⁹⁵

Article 9 is often understood to mean that the tax authority may require a more stringent reporting from the taxable person on following arm's length principle, as would be required by Article 9 as such. This is particularly related to the transfer pricing documentation, which aims to demonstrate market-based for transfer pricing.⁹⁶ Paragraph 9 states that the taxable person's taxable income may be adjusted if it has not been accumulated by a taxable person on a market-based business. The requirements for the transfer pricing adjustment are described in paragraph 1 of this article. These terms are parallel to the Finnish tax legislation. Tax treaties, in principle, accept income that has not occurred between affiliates. If the income adjustment conditions are met in the transactions, the taxable income can be adjusted despite the prohibitions on discrimination in the tax treaties.⁹⁷

⁹¹ Jaakkola et al. 2012: 26

⁹² Raunio & Karjalainen 2018: 6

⁹³ Jaakkola et al. 2012: 26

⁹⁴ Raunio & Karjalainen 2018: 6

⁹⁵ Jaakkola et al. 2012: 27

⁹⁶ Raunio & Karjalainen 2018: 6

⁹⁷ Jaakkola et al. 2012: 27

Paragraph 2 describes the situation where a request for counter-adjustment in another country may be requested if the taxable income in the home country or in another country has been adjusted detrimentally.⁹⁸ The second paragraph of the article is intended to prevent double taxation. A counter-adjustment in another country should be done when taxable income has been adjusted according to paragraph 1.⁹⁹ The counter-adjustment of transfer pricing also requires the exchange of information between tax authorities.¹⁰⁰ The exchange of information in Finnish tax treaties are mainly based on Article 26 of the OECD Model Tax Convention, the primary purpose of them are to prevent tax evasion and avoid double taxation.¹⁰¹ This article 26 does not go further in this study, but the exchange of information may be limited or extensive and must be based on local legislation.¹⁰²

⁹⁸ Jaakkola et al. 2012: 28

⁹⁹ Raunio & Karjalainen 2018: 6

¹⁰⁰ Jaakkola et al. 2012: 28

¹⁰¹ Äimä 2017: 378

¹⁰² Äimä 2017: 378–379

3.3.4 OECD Model Tax Convention, article 25

The article 25 of the current OECD Model Tax Convention is as follows:

“1. Where a person considers that the actions of one or both of the Contracting States result or will result for him in taxation not in accordance with the provisions of this Convention, he may, irrespective of the remedies provided by the domestic law of those States, present his case to the competent authority of the Contracting State of which he is a resident or, if his case comes under paragraph 1 of Article 24, to that of the Contracting State of which he is a national. The case must be presented within three years from the first notification of the action resulting in taxation not in accordance with the provisions of the Convention.

2. The competent authority shall endeavour, if the objection appears to it to be justified and if it is not itself able to arrive at a satisfactory solution, to resolve the case by mutual agreement with the competent authority of the other Contracting State, with a view to the avoidance of taxation which is not in accordance with the Convention. Any agreement reached shall be implemented notwithstanding any time limits in the domestic law of the Contracting States.

3. The competent authorities of the Contracting States shall endeavour to resolve by mutual agreement any difficulties or doubts arising as to the interpretation or application of the Convention. They may also consult together for the elimination of double taxation in cases not provided for in the Convention.

4. The competent authorities of the Contracting States may communicate with each other directly, including through a joint commission consisting of themselves or their representatives, for the purpose of reaching an agreement in the sense of the preceding paragraphs.”¹⁰³

Article 25 allows Member States to make use of the Mutual Agreement Procedure (MAP) if it would otherwise lead to double taxation, such as conflicts of interpretation of tax treaties between participating Member States, allocation of income to a permanent establishment, existence of a permanent establishment or compliance with the market principle. The mutual agreement procedure is designed to prevent the taxpayer from double taxation through procedures between competent authorities of different states.¹⁰⁴ It allows for reciprocal dialogue and agreement between tax authorities on transfer pricing issues,

¹⁰³ OECD 2017a: 44

¹⁰⁴ Jaakkola et al. 2012: 29

regardless of whether the agreement is an individual case or a broader agreement.¹⁰⁵ Article 25 allows reciprocal dialogue and agreement between tax authorities on issues related to transfer pricing, regardless of whether the agreement is an individual case or a broader agreement. In a way, it creates a framework and boundary conditions for how Member States interact with each other in case of problems.¹⁰⁶

The taxable person may, if necessary, rely on the double taxation referred to in Article 25 (1) before the taxable person's income is taxed twice. Thus, its application is also proactive and can be used mainly as a pre-contractual procedure (APA procedure) for a preliminary ruling by a taxable person.¹⁰⁷ The mutual agreement procedure can also be initiated under the EU Arbitration Agreement if the taxpayer has already been subject to double taxation in both EU Member States.¹⁰⁸

The mutual agreement procedure can be regarded as a parallel procedure for national appeal. If the taxpayer is not satisfied with the decision of his tax authority, he may, under that article, require the contract procedure to be initiated. Similarly, the initiation of a mutual agreement procedure does not require the appeal of the tax authority but can be initiated by the authority itself. However, the mutual agreement procedure has one major problem for the taxpayer. There is no need for the tax authorities to reach an agreement on the problem, which can be harmful to the taxpayer.¹⁰⁹

¹⁰⁵ Jaakkola et al. 2012: 29; Raunio & Karjalainen 2018:9

¹⁰⁶ Raunio & Karjalainen 2018: 9

¹⁰⁷ Raunio & Karjalainen 2018: 9

¹⁰⁸ Jaakkola et al. 2012: 29

¹⁰⁹ Raunio & Karjalainen 2018: 9-10

4 TRANSFER PRICING METHODS

4.1 Comparable uncontrolled price method, (CUP)

Comparable uncontrolled price method (CUP) is determined by comparing the assumed prices by independent parties in similar conditions and sufficiently comparable transactions in the prices used by the group of companies in their internal transactions. The comparing prices generated by trading between the independent parties create a range of values within which the prices used in transfer pricing situations should be implemented. The comparison can be considered outside the other party purchased or sold deliverables or two fully independent external party (for example, direct market quotation data) prices between trades.¹¹⁰

CUP method is considered the most straightforward and reliable method following arm's length principle by far when the company has similar trades between direct suppliers or customers who are independent parties.¹¹¹ This is due to the fact that the taxpayer can hardly influence the uncontrolled price of the other party.¹¹² The CUP method is very useful and reliable if traded article is well-known and widely available raw material, simple component or service from the open markets. Then company can set the price as the other vendors have priced it in the open market.¹¹³

Unfortunately, there are seldom similar data available from transactions between suppliers or customers than transactions in consolidated companies, which makes challenging to apply comparable uncontrolled price method if the delivery or transaction is unique. Furthermore, trades between consolidated companies and independent companies must consider all the related issues. All the organizations have arranged their business models, supply chains and strategy unique way, which reflect different ways to the price of product or service. In addition to them, consolidated companies may have negotiated unusual

¹¹⁰ Kukkonen & Walden 2016: 201

¹¹¹ Kukkonen & Walden 2016: 201

¹¹² Markham 2005: 97

¹¹³ Jaakkola et al. 2012: 76

or long-time mutual agreements, where can be defined bulk discounts, solid prices, quality or other conditions of sale. Then the companies deviate from current market price when arm's length principle does not implement completely.¹¹⁴ Also, buying prices are not publicly disclosed, which makes it almost impossible to obtain comparative information.¹¹⁵ However, CUP is generally and accepted transfer pricing method for valuation widely in Europe.¹¹⁶

4.2 Resale price method, (RPM)

Resale price method means buying of goods or services from consolidated company is sold to independent customer, which is not part of consolidate companies. From point of arm's length principle's view, it means the company, which belongs to consolidated companies, can deduct the buying price of goods or services, but also add conventional and acceptable profit margin to price when selling to another party. The volume of profit margin depends how risk and another transaction it needs on resale process. What bigger are the risks or transactions during the resale process, that better profit margin is generally acceptable.¹¹⁷ However, profit margin also must follow arm's length principle, so it cannot be exaggerated.¹¹⁸

In RPM, intra-group transactions and independent customer transactions are comparable, if any compared transactions or their parties do not make essential difference between them, what could affect volume of profit margin in the open markets or essential differences can be deduct from the price by exact restating.¹¹⁹ However, in comparison of price by using RPM is not as strictly restricted as using CUP method from point of arm's length principle's view. When assessing the comparability of two transactions on the one hand while using the CUP and the RPM on the other, when using the resale price method, the similarity of the products is not as absolute requirement as when using the CUP. Instead,

¹¹⁴ Jaakkola et al. 2012: 76-77

¹¹⁵ Collin et al. 2017: 647

¹¹⁶ Kukkonen & Walden 2016: 201

¹¹⁷ Jaakkola et al. 2012: 78

¹¹⁸ Kukkonen & Walden 2016: 204

¹¹⁹ Raunio & Karjalainen 2018: 117

with the RPM, the requirement for similarity between the reseller's activities (assets committed and the risks involved) is more essential than the products or services.¹²⁰ Thus importance of strategy, terms of conditions, business models also have an impact on assessing the price in RPM.¹²¹ RPM can be applied when reseller company do not produce a significant added value for its goods or services.¹²² Similarity of product is not necessary requirement for RPM, but it gives an advantage in valuation if they are similar.¹²³ The cost base of a product is a more essential factor when using RPM.¹²⁴

4.3 Cost plus method, (CPL)

Cost plus method (CPL) price is defined by calculating costs of goods or services when produced and then add reasonable profit margin to costs which follows arm's length principle. The profit margin is determined by the number of operations required, the market conditions, and the level of risk.¹²⁵ The profit margin is defined as a percentage of the costs, which is added on it.¹²⁶ The acceptable profit margin is often the same profit margin than company would sell a product or service to independent company. Otherwise the profit margin must be compared from independent companies, which might be challenging if the reliable data is not available.¹²⁷ CPL is very useful method for pricing, when the performance is semi-finished product, which is based on long-term delivery and agreement, but also pricing of intra-group services.¹²⁸

In CPL, it is important to define right costs and acceptable profit margin.¹²⁹ Direct manufacturing costs, for example raw materials and production labor, are basically always acceptable.¹³⁰ Direct costs can be equated with conceptually variable costs, the amount of which is directly proportional to the number of outputs produced. In addition to the costs

¹²⁰ Jaakkola et al. 2012: 78

¹²¹ Raunio & Karjalainen 2018: 117

¹²² Collin et al. 2017: 648

¹²³ Raunio & Karjalainen 2018: 117

¹²⁴ Collin et al. 2017: 648

¹²⁵ Jaakkola et al. 2012: 80, Collin et al. 2017: 648

¹²⁶ Raunio & Karjalainen 2018: 121

¹²⁷ Kukkonen & Walden 2016: 206

¹²⁸ Jaakkola et al. 2012: 80

¹²⁹ Collin et al. 2017: 648

¹³⁰ Jaakkola et al. 2012: 80

that are directly attributable to the performance, the output is to be allocated a calculated part of both the indirect costs of production and the other business expenses of the entire company.¹³¹

Especially the defining acceptable indirect costs of productions and the other business expenses can be problematic in practice, although business must cover its all the expenses to be profitable in the long-term. Due to economic reasons, like demand and supply must consider when planning pricing. However, indirect costs of productions usually comprise of maintenance costs of production and work supervision, which are common for entire production, not only for intra-group sold performances. The other business expenses cover general expenses, for example general management, research and development, financial administration and marketing.¹³²

When applying CPL, intra-group comparison often is more reliable than comparison with external independent party, because the cost structure of intra-group companies is better available.¹³³ Sometimes companies must try analyzing the cost structures of performances by making assumptions from production volumes, labor costs and raw materials of other companies. According to OECD, acceptable economic indicators for measuring other companies' operative profit are gross margin, net margin, or EBITDA (earnings before interest, taxes, depreciations and amortizations). The difference between these concepts are insignificant, but in calculations they might give clearly different results, which comes from different type of business models and assumptions.¹³⁴

4.4 Transactional net margin method, (TNMM)

Transactional net margin method (TNMM) is the most complicated valuation method so far. It is a similar method than resale price method or cost plus method, but TNMM is based on the entire business comparison and assessing net profit margin what should be occurred between two independent parties.¹³⁵ Net profit margin is compared to another

¹³¹ Kukkonen & Walden 2016: 205

¹³² Jaakkola et al. 2012: 80-81

¹³³ Jaakkola et al. 2012: 81

¹³⁴ Kukkonen & Walden 2016: 207

¹³⁵ Raunio & Karjalainen 2018: 128

company's equivalent financial ratio and both companies financial ratio is proportioned to the same company's assets, costs, profits or balance sheet total.¹³⁶ It is important to use similar financial ratios in comparison, which is calculated by the same rules. Otherwise you don't get a good base for straightforward comparison in TNMM.¹³⁷

TNMM's strength is that corresponding company's data and financial ratios is quite easily available, thus its using is popular. Furthermore, differences between business transactions and products on corresponding firm have a less effect on price than in CUP or RPM, where the greater focus is on the profit margin or product's similarity.¹³⁸ Net profit margin covers more cost than CUP or RPM and thus it gives more information about profitability of the company, not only from the one product or service's point of view.¹³⁹ However, the extraordinary profits and expenses may distort the financial performance of comparable company.¹⁴⁰

TNMM comparison can be done for intragroup company or independent company. Intragroup comparison should be used primarily, where seller received net margin price related intra-group transaction may be determined on a net margin that the same company earns concluded with an independent party in a comparable transaction (so called intra-group comparison). In intra-group, profits would be equivalent to the comparative items in proportion to the factor of production.¹⁴¹ In the absence of intra-group comparisons, a reasonable net margin can be determined by examining the net margin an independent company earns for its operations.¹⁴² In comparison with independent companies, the TNMM's advantage can be considered that the cost base does not have to be the similar if only the comparison of functions is essential.¹⁴³

TNMM can be applied very well, when intra-group company produces products or services as a routine for another intra-group company, which is responsible for demanding

¹³⁶ Jaakkola et al. 2012: 83

¹³⁷ Raunio & Karjalainen 2018: 130

¹³⁸ Jaakkola et al. 2012: 84; Raunio & Karjalainen 2018: 129

¹³⁹ Raunio & Karjalainen 2018: 128

¹⁴⁰ Collin et al. 2017: 648

¹⁴¹ Kukkonen & Walden 2016: 218; Raunio & Karjalainen 2018: 129

¹⁴² Raunio & Karjalainen 2018: 129

¹⁴³ Collin et al. 2017: 648

activities, carries on most significant risks or uses in own business valuable intellectual properties. In this case, routine means performance's further processing, which creates a low added value. Hence, in comparison, it is better to choose this kind of routine processing company for another company and study its EBIT from the point of arm's length principle.¹⁴⁴

The base of the net margin is chosen depending on the value of the test is based on another party's activities. For example, when the value of a sales company is based on the sales revenue, the net sales margin of the sales company is the ratio of operating profit to sales. In service business, the value of the activity is often based on accrual costs, so the net margin is operating profit in proportion to accrual costs. In capital intensive manufacturing, the net profit could also be an operating profit in relation to committed assets or capital.¹⁴⁵ In the cost based TNMM, the profit margin should only be calculated for those costs that generate added value. Non-value-added costs must be calculated without any extra profit or left entirely outside the calculations. Costs should be selected on a cost basis according to arm's length principle.¹⁴⁶

In theory, the TNMM method assumes that the companies in the corresponding industry or activity will earn the corresponding profits in the long run. However, this assumption does not work often in practice, and therefore the efficiencies cannot be adequately taken into consideration and there is a risk that businesses will be taxed too strictly.¹⁴⁷ As a weakness of the TNMM, the method does not take into account the efficiency of the business or the differences in capacity if no arm's length adjustments are made.¹⁴⁸

¹⁴⁴ Jaakkola et al. 2012: 83

¹⁴⁵ Raunio & Karjalainen 2018: 130

¹⁴⁶ Raunio & Karjalainen 2018: 132–133

¹⁴⁷ Kukkonen & Walden 2016: 208

¹⁴⁸ Raunio & Karjalainen 2018: 134

4.5 Profit split method, (PSM)

The profit split method defines the common profit or loss of a transaction between related parties that is distributed among the parties according to arm's length principle, in a manner that would be agreed between independent parties.¹⁴⁹ PSM is presented in the OECD Transfer Pricing Guidelines primarily for conditions where transaction-specific (CUP, RPM or CPL) principal methods are not applicable for one reason or another. It is a secondary method for valuation in arm's length principle but are also generally acceptable.¹⁵⁰

PSM consists of two components; defining the common profit or loss and then sharing the profit or loss between involved parties.¹⁵¹ In use, PSM requires activity assessment, where must take into account carried risks, used assets and costs for manufacturing and delivery of all the involved parties.¹⁵² According to arm's length principle, the result of the PSM should be similar to independent parties would be agreed or accepted in the same conditions.¹⁵³ Regardless of the method of valuation, the most important thing is to be able to prove following arm's length principle.¹⁵⁴

According to OECD guidelines of transfer pricing, there can be two approach for the PSM, which are combined profits or residual profit. The combined profit is divided by using the contribution analysis between the parties, usually based on the mutual relationship between the value of their activities. You can try to perceive this relationship of mutual actions with external market information, but it can be challenging.¹⁵⁵ The residual profit is done in two steps. For the first, all the involved parties define the fair compensation price, which follows arm's length principle, for example by using TNMM. Then the potential exceeding profit will be allocated in the same way proportioned to used activities, costs, assets and carried risks for all the involved parties.¹⁵⁶

¹⁴⁹ Raunio & Karjalainen 2018: 137

¹⁵⁰ Kukkonen & Walden 2016: 207

¹⁵¹ Raunio & Karjalainen 2018: 137

¹⁵² Jaakkola et al. 2012: 90

¹⁵³ Kukkonen & Walden 2016: 208

¹⁵⁴ Rapo 2018: 572

¹⁵⁵ Raunio & Karjalainen 2018: 138

¹⁵⁶ Jaakkola et al. 2012: 91

An advantage of PSM is that profits or losses can be distributed in proportion to the value added by each party to the transfer pricing object.¹⁵⁷ Similarly, it is not necessary to distinguish between individual activities between the parties if it proves following in terms of arm's length principle.¹⁵⁸ Another PSM's strength is also applied to intra-group transactions, where all the involved parties make complicated, valuable and high technology improvements for the product, so products do not have to be similar, but it is rather further processing or developing. But the weaknesses, it is secondary method if any other method is not applicable, lack of transparency and it demands adequate good explanation why they cannot be applied.¹⁵⁹

Furthermore, it is challenging to find comparable parties outside the intra-group company, because the these details are seldom publicly available and tax administration not so often like this method for valuation, which may cause disagreements or disputes with tax administrations.¹⁶⁰ It can be also challenging and laborious to define appropriate carried risk, costs or used assets for the delivery. It demands mutual valuation method from all the involved parties, otherwise, PSM won't work.¹⁶¹

PSM can be applied when all the involved parties have a very valuable or unique add, for example intellectual property or high technological add, for the delivery in the further processing.¹⁶² Especially residual profit method demands intellectual or high technological add in its use.¹⁶³

¹⁵⁷ Rapo 2018: 573

¹⁵⁸ Rapo 2018: 574

¹⁵⁹ Jaakkola et al. 2012: 90-91; Raunio & Karjalainen 2018: 146

¹⁶⁰ Raunio & Karjalainen 2018: 141

¹⁶¹ Jaakkola et al. 2012: 91

¹⁶² Jaakkola et al. 2012: 92; Raunio & Karjalainen 2018: 137.

¹⁶³ Raunio & Karjalainen 2018: 138.

5 METHODS OF TRANSFERRING THE ALGORITHMS

5.1 Transfer of all rights

In principle, transfer of all rights and should not be confused with normal licensing. In the sale, all rights to the software are transferred to the other party, so that the party that has sold after the sale no longer has the rights to the software that it produces.¹⁶⁴ Often, the valuation and pricing of intangible assets is a major challenge for the transfer pricing of intangible assets. Valuation and pricing should be following arm's length principle, but it is often very difficult to find an applicable point of comparison, because they are poorly available and every intangible asset is, in principle, unique.¹⁶⁵ In addition, valuation calculations of intangible rights are often complex and partly speculative. According to Raunio and Karjalainen, generally accepted methods of valuing intangible rights are cost-based, market-based and revenue-based valuation. In addition to these, other methods can be used in parallel to ensure that the value is correct.¹⁶⁶

Cost-based valuation is based on calculating and determining the costs of developing purely intangible rights. This method requires a sufficiently precise identification of the costs incurred in the development of intangible rights. For example, the Costing Site or Project Costing can be used as an aid in the analysis, including the cost of product development. The problem with cost-based valuation is that the economic value of an intangible right, with a small increase, can be a significant financial gain, even if the expense is minimal.¹⁶⁷

In a market-based approach, pricing is based on the identification and comparison of similar off-line transactions, but it is very difficult to find external comparable. Every intellectual property is unique and rarely available on the market. Also their prices of transfer of all rights are often kept secret.¹⁶⁸ In most cases, the transfer of all rights of the software

¹⁶⁴ Välimäki 2006: 144-145

¹⁶⁵ Raunio & Karjalainen 2018: 222, 234

¹⁶⁶ Raunio & Karjalainen 2018: 234

¹⁶⁷ Raunio & Karjalainen 2018: 235

¹⁶⁸ Raunio & Karjalainen 2018: 236

is part of the sale of the entire business in acquisitions, making it difficult for an outsider to separate the portion of the software from the entire business acquisition.¹⁶⁹

In market-based valuation, it is important to clarify the legal issues related to the intellectual property in question. Inevitably, it is not always clear who owns these intellectual property rights or what contracts, or licenses are associated with intangible rights.¹⁷⁰ Market-based valuation should consider, *inter alia*, the remaining life cycle of intangible rights, the expected return and the intangible risk profile.¹⁷¹

In the revenue-based approach, future net income is calculated by using the Net Present Value method. The income-based method assesses the amount of income that an intangible asset generates to its owner over the life of the asset.¹⁷² It is based on the financial theory.¹⁷³ When using this method of calculation, the economic life cycle of the intangible assets, as well as the proceeds and costs of intangible assets, must be taken into account. In addition, the choice of discount factor has a very significant impact on the result. Income based valuation requires careful data collection of profits and costs and calculation with different yield demands.¹⁷⁴

The income-based valuation method considers expected cash flows, capital investments, other expenses, depreciation and amortization. Capital investments are included computers, servers, sensors and other equipment that may be needed to generate revenue.¹⁷⁵ According to Raunio and Karjalainen, income-based valuation is often used when the intangible asset is already in commercial use as a license, because then, in addition to costs, future revenue and the economic life cycle of intangible assets can be verified with enough reliability.¹⁷⁶ The economic lifetime of information technology depends to a large extent on a number of factors, such as the market situation, the technical characteristics

¹⁶⁹ Contractor 2001: 216

¹⁷⁰ Collin et al. 2017: 675

¹⁷¹ Raunio & Karjalainen 2018: 236

¹⁷² Contractor 2001: 215

¹⁷³ Seppänen 2017: 91

¹⁷⁴ Raunio & Karjalainen 2018: 236

¹⁷⁵ Contractor 2001: 215

¹⁷⁶ Raunio & Karjalainen 2018: 236

of the product, the functional characteristics, and the lifetime of the corresponding products. Here, the market situation means competitors and potential or existing customers. Functional features mean how it fits the needs of customers, industrial standards, hardware and operating systems.¹⁷⁷

Mathematically, the net present value method can be described as follows:

$$NPV = CF_0 + \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \frac{CF_3}{(1+r)^3} \dots \frac{CF_n}{(1+r)^n} = CF_0 + \sum_{t=1}^n \frac{CF_t}{(1+r)^t}, \text{ where NPV means}$$

Net Present Value, CF_t means net cash value and r means interest rate of return.¹⁷⁸

In turn, the interest rate requirement used in the Net Present Value (NPV) Method can be determined only for equity or for the company's total capital. If the interest rate is determined solely on equity, the CAP model must be used.¹⁷⁹ The CAP model is calculated by using the following formula: $E(R_i) = \beta_i[E(R_m) - R_f]$, where $E(R_i)$ means the return on an individual investment i , r_f means the risk-free return on investment, $E(R_m)$ means the expected return of the market portfolio.¹⁸⁰

Discounted Cash Flows (DCF) used in the NPV is a very sensitive valuation method due to so many variables and background assumptions, but also one of the most laborious methods at the same time. The model predicts far into the future and is also a very subjective method.¹⁸¹ Cash flow is the future free cash flow of an enterprise's operational business and other regular operations, which has not yet considered financial items. It is based on cash flows from the income statement and balance sheet that can be used to pay dividends to shareholders or to pay interest on debt.¹⁸² Future free cash flows are discounted in order to calculate the present value by the weighted average cost of capital (WACC) and Capital Asset Pricing model (CAP) yield requirement.¹⁸³ Free Cash Flow can be defined as follows:

¹⁷⁷ Contractor 2001: 215-216

¹⁷⁸ Knüpfer & Puttonen 2018: 109

¹⁷⁹ Knüpfer & Puttonen 2018: 153

¹⁸⁰ Knüpfer & Puttonen 2018: 153

¹⁸¹ Jaakkola et al. 2012: 314

¹⁸² Jaakkola et al. 2012: 314; Kallunki 2014: 197

¹⁸³ Jaakkola et al. 2012: 314-315

Earnings before interests and taxes (EBIT)
 +Amortizations
 -Operative taxes
 -Changes in networking capital, add (-) / reduce (+)
 -Investments
 =Free Cash Flow (FCF) ¹⁸⁴

If the net present value method interest rate is determined for the company's total capital, the yield rate is calculated using the weighted average cost of capital (WACC) method. The WACC model is calculated by using the following formula: $WACC = r_A = \frac{E}{V} \times r_E + \frac{D}{V} \times r_D (1 - T)$, where E means equity, r_E means return on equity, D means debt, r_D means return on debt, V means total capital and T means tax rate.¹⁸⁵

5.2 Licensing

Licensing means granting access to one of the others'-controlled rights. A license may be granted for any of its exclusive rights, such as a patent, utility model, brand, or logo. Intellectual property rights are mainly property that is transferred to another party. For licensing to be granted, intellectual property rights should not be generally available or generally known. However, the licensed party may not, in principle, license the intellectual property right to the next party without the permission of the exclusive owner, but the separate assignment must be agreed separately in order not to infringe the copyright.¹⁸⁶

Computer software and information technology can also be licensed where traditional other intellectual property rights can be licensed and used by many software companies on their daily business.¹⁸⁷ In the licensing method, the same license can be offered to several customers, but the copyright is reserved by itself. Software licenses also include,

¹⁸⁴ Jaakkola et al. 2012: 314

¹⁸⁵ Knüpfer & Puttonen 2018: 190

¹⁸⁶ Mylly 2001: 4-5

¹⁸⁷ Mylly 2001: 25

in addition to copyright licenses and patent licenses, contractual terms such as terms restricting the use of the program, disclaimers, restrictions on competition, and product support, so it would be better to use the license agreement name when the software is offered to a customer.¹⁸⁸ Licensing can also be considered a rental in its own way if the license agreement is only temporarily valid.¹⁸⁹

The license fee can be divided into three different types, the first of which is a continuous license fee. A continuous license fee will be charged regularly for the same fixed license fee. Another option is to pay royalty at once. The transfer of all rights royalty payment covers the entire licensing period. The third option is a combination of prepayment and fixed license fee, which pays an amount before the start of the contract and is then regularly charged the same fixed license fee.¹⁹⁰

5.3 Transfer free of charge

When transferring the Group's intellectual property rights to a company transferring from one country to another, an exit tax may be payable on the transfer of the intellectual property right.¹⁹¹ Thus, the tax authorities of the country of the transferring company are exempt from taxable income, asset or liable to pay taxes. Exit tax is calculated from the difference between fair value and acquisition cost.¹⁹²

The transferring free of charge is not recommendable, because the method does not avoid paying taxes, but it can be considered on a case-by-case basis if calculations show that it is profitable. Thus, the calculation can support decision-making. The calculation must at least consider the tax rates between the countries, the tax costs of repatriation of profits in both countries and the potential losses in the transferring country resulting from product development.¹⁹³

¹⁸⁸ Välimäki 2006: 146

¹⁸⁹ Välimäki 2006: 148

¹⁹⁰ Raunio & Karjalainen 2018: 239

¹⁹¹ Collin et al. 2017: 678

¹⁹² Helminen 2018: 231

¹⁹³ Collin et al. 2017: 678

Exit taxation covers the transfer of assets and rights belonging to the company, the transfer of business or the transfer of the state of residence.¹⁹⁴ The only exception to the exit tax exemption is that the transferring company returns the transferred intangible assets as such within 12 months, the transfer being considered to be only temporary.¹⁹⁵ In addition, the transfer of intangible assets to low-tax countries free of charge is restricted by the Act on the taxation of shareholders in Controlled foreign companies (CFCs) if the effective tax rate of the subsidiary in its own country is less than 3/5 of the Finnish corporate tax rate, because then the income can be considered as the income of a Finnish shareholder. There is no exception to this, even if the ownership would be decentralized to indirect ownership.¹⁹⁶

¹⁹⁴ Helminen 2018: 231

¹⁹⁵ Helminen 2018: 233

¹⁹⁶ Collin et al. 2017: 678

6 VALUATION OF ALGORITHMS

6.1 Description of research problem

As stated earlier in the study, transfer pricing should follow the arm's length principle.¹⁹⁷ Transfer pricing means that the group of companies trade each other under similar conditions and prices as they would trade with independent parties.¹⁹⁸ In Finland's national tax law arm's length principle is required in Act Assessment Procedure, Section 31, which was previously presented in the third chapter, although it is not explicitly mentioned.¹⁹⁹ As well, Article 9 of the OECD Transfer Pricing Guidelines requires the treatment of arm's length principle.²⁰⁰

In Finland, the arm's length principle of transfer pricing is derived from the provision of 31§ of the VML. There is no mention the arm's length principle directly in the law, except in Section 31. Instead, valuation is guided by the OECD guidelines that Finland has committed to follow to. Problems generate if the guidelines for the different aspects of the OECD's Transfer Pricing Guidelines are not accurately described.²⁰¹ As a rule, Finland's tax agreements with other countries comply with Article 9 of the OECD on defining arm's length principle.²⁰²

The issues with transfer pricing are particularly related to the valuation of intangible assets, regardless of whether the transfer of intangible assets occurs through transfer of all rights or licensing method. Transfer of all rights is significantly more economical than the economic value of licensing.²⁰³ Valuation may also be difficult between independent parties. In most cases, trading is approached from a business-economical point of view. In the trading of independent parties, both parties approach the valuation of intangible assets at the highest rate of return. Both parties try to maximize their own benefits,

¹⁹⁷ Helminen 2018: 265

¹⁹⁸ Raunio & Karjalainen 2018: 45

¹⁹⁹ Collin et al. 2017: 634

²⁰⁰ OECD 2017a: 34-35

²⁰¹ Pankakoski 2018: 155

²⁰² Pankakoski 2018: 156

²⁰³ Pankakoski 2018: 184

whereby independent parties make a price comparison like the arm's length principle in transfer pricing. However, the parties do not know which value factor the price is for the other party. The view is very subjective. Basically, trading between the independent parties is that the market value is equal to the future economic value of the dedicated asset.²⁰⁴

However, the intangible assets, where the algorithms belong to, are often unique entities, and rarely, comparative information is available for valuation purposes. The commercial value and content of intangible assets are often strictly protected business secrets, and their market forces is not necessarily expressed in all product pricing.²⁰⁵ According to Doctor Pankakoski's doctoral thesis, the valuation of intangible assets is always inaccurate, and the valuation is never accurate enough.²⁰⁶ The valuation of intangible assets and algorithms are particularly difficult if they are unfinished at the valuation stage, because even then their profit expectations are even more difficult to estimate.²⁰⁷

6.2 Comparing of the valuation methods in transfer pricing

In chapter 4 have been introduced general valuation methods for algorithms. Likewise, the paragraph 5 introduces a cash flow-based valuation method in addition to delivery methods. Now it would be necessary to choose the most suitable methods for valuation for transfer of all rights and licensing for both algorithms. The valuation method does not in itself matter what to use, if it can be proved that the arm's length principle is followed. All valuation methods have strengths and weaknesses, so it is important to choose the most appropriate method for the situation.²⁰⁸

The case algorithms can be classified to the intellectual properties and they are initially about research and developing projects. Thus, a considerable amount of costs will be incurred before they can receive any income. According to Jaakkola and others, between

²⁰⁴ Pankakoski 2018: 158

²⁰⁵ Raunio & Karjalainen 2018: 236

²⁰⁶ Pankakoski 2018: 158

²⁰⁷ Raunio & Karjalainen 2018: 249

²⁰⁸ Jaakkola et al. 2012: 73

the market value and cumulative cost of intellectual properties cannot be found correlation.²⁰⁹ Boos also agrees that the costs alone do not necessarily reflect reality.²¹⁰ However, according to Pankakoski, the accrual costs of developing algorithms creates a minimum basis for the estimation of algorithms. It's just matters of cost accounting in valuation. For example, the cost valuation method is suitable for a situation where intangible rights have been acquired from outside the group and will be transferred immediately to another intra-group company. In this case, the balance sheet value can be considered to reflect arm's length principle.²¹¹ However, the problem of historical cost accounting may be when the costs of intangible assets need to be monitored and when their monitoring should end.²¹² In addition, the right way of defining a cost base can create challenges.²¹³

For the study have been interviewed personnel of case organization who work closely with both algorithm technologies. The questions for the interviews can be found in Appendix 2 and Appendix 3). The two algorithms in the study are using artificial intelligence and machine learning technologies and both algorithms are made valuation for licensing and transferring of all rights in transfer pricing. Both technologies are complementing each other and still unfinished. The first algorithm is called Situation Knowledge Control System (SKCS) and another algorithm is called Map Route Control System (MRCS). According to interviewed product manager in Appendix 2, the first algorithm (SKCS) attempts to detect different objects from its environment and to measure distances to them. It makes for its user safer to move in dark and foreign environment.

According to responsible product manager of developing of SKCS algorithm (see Appendix 2), there are only a few players in the market who are doing almost the same product development for their own account but are lagging far behind the SKCS's development. According to him (see Appendix 2), they also differ somewhat from their SKCS properties, but exact information from comparable algorithms are not available due to strict

²⁰⁹ Jaakkola et al. 2012: 209

²¹⁰ Boos 2003: 75, 77

²¹¹ Pankakoski 2018: 188-189

²¹² Boos 2003: 76

²¹³ Boos 2003: 77

business secrets. Furthermore, the other players have also different business areas than only developing those algorithms and ecosystem around it. Both algorithms have been developed together with another subsidiary in the group and both companies have covered their own costs for product development.²¹⁴

According to Sales Manager in Appendix 3, the second algorithm (MRCS) optimizes the paths from current location to destination for the user. That algorithm makes the user's journey shorter and saves time. SKCS algorithm belongs to the wider picture and software where is included multiple devices and equipment, which need each other to work properly. Instead, MRCS is a bit simpler according to Sales Manager (see Appendix 3), and it consist of only some servers and software. Both algorithms have been sold as a license for a few independent parties.

Both algorithms (SKCS and MRCS) are mainly programmed by own company, but some services, advisory and consulting for programming are also purchased from the independent company to developing the algorithms. Both algorithms are technologically completely new and, with the help of artificial intelligence and machine learning, attempt to model the reality around us and make them aware of their existence. Thus, they can be considered high technology software. Both algorithms are in the final stages of their development before being commercialized. Later, if necessary, they will be updated and further developed. According to technical product manager (see Appendix 2), algorithms must be developed sufficiently and reliably tested its working under the right conditions before they can be commercialized.

Both interviews (see Appendix 2 and 3) got the same idea of the nature of their business. In the case of SKCS and MRCS, the revenue is generated by selling licenses to clients or another parties, which utilizes SKCS and MRCS technology. Sold license is including not only software but also setup of devices. Sold license setup of devices and price may vary between SKCS and MRCS licenses and they can be sold separately. The ownership

of setup devices will be transferred after delivering, but another party will receive an access only to software. The license payment comprises of initial payment and later solid amount and it will be charged annually from 5 to 10 years. The initial payment is intended to cover partly or completely devices of SKCS or MRCS setup, installation, delivery, user training and product guarantee. The length of the license will depend what has been negotiated with client or another party and it can be repeated if needed.

In the CUP method, intra-company transfer prices are compared to the prices used by independent companies in comparable transactions. A prerequisite for the method is that the comparable objects are sufficiently like each other and that there is enough information available from the comparison objects of independent parties. If the comparable data and objects are publicly available, then the method might be feasible for valuation.²¹⁵ For the algorithms this CUP-method could be suitable if the valuation will be done similar algorithms that previously have already been sold for the independent parties. Hence, there is some data available from the open markets, but problem might be too low frequency of business trade transaction. The used license prices are approximate about current market conditions, but all the potential parties may not be willing to pay the price of the SKCS and MRCS license that have been previously used.

In RPM and CPL methods gross profit margin and profit margin must compare to external comparable if internal comparable is not available.²¹⁶ Internal comparable is more confident, when you have more reliable information about pricing and cost base.²¹⁷ When using the RPM method, an arm's length principle-based transfer price is obtained when the transfer pricing item is sold to another intra-group company and the gross margin for the reseller is deducted from the price of the product. The method can be considered suitable if the intra-group dealer does not add value to the item.²¹⁸ Applying the RPM method to algorithms by licensing or transfer of all rights is challenging because the separation of

²¹⁵ Collin et al. 2017: 647

²¹⁶ Jaakkola et al. 2012: 263

²¹⁷ Collin et al. 2017: 263

²¹⁸ Collin et al. 2017: 648

profit margins from the selling price of the algorithms is very difficult. Product development costs are non-recurring and cannot be recovered as such in the selling price and the products are highly scalable. Thus, the RPM method hardly provides a reliable image of arm's length principle for algorithms.

In CPL method, the cost of the transfer pricing object is defined, and a profit margin is added to the accumulated cost. In the method, it is important to carefully determine the right cost base and the margin, which follows arm's length principle.²¹⁹ Using an external control is often difficult in the CPL method because the cost base and any other important information of external comparable is often a business secret.²²⁰ The method is particularly suitable for services and semi-finished products.²²¹ Hence, CPL is not good method enough to make valuation according to arm's length principle. There is no comparable information available. Nor is it a service, and the algorithm does not actually have a semi-finished product, although it can be developed further. It cannot be used anywhere before it is finished and reliably tested many times in different circumstances.

As previously mentioned, the purpose of the TNMM method is to determine the net return of a company's operations by business and to compare it with the independent parties' respective numbers.²²² A comparable party can also be internal. The method is suitable for situations where goods are routinely produced for the other party and do not provide significant added value to the other party.²²³ The strength of the TNMM is the comparability of its financial ratios, which are relatively readily available, including from outside parties. In addition, the TNMM method eliminates the transaction or product differences when the comparative focus is mainly on relative profitability.²²⁴ From the point of TNMM's view, the researching and developing of algorithms in software are not routine producing for the company. Furthermore, when the technology is completely new and makes easier to navigate and move in environment, it creates high value for its user.

²¹⁹ Collin et al. 2017: 648

²²⁰ Jaakkola et al. 2012: 263

²²¹ Collin et al. 2017: 648

²²² Collin et al. 2017: 648

²²³ Jaakkola et al. 2012: 83

²²⁴ Jaakkola et al. 2012: 84

6.3 Choosing of valuation methods

6.3.1 What are the most appropriate methods for transfer of all rights?

In its latest transfer pricing guidelines for 2017, the OECD recommends choosing its transfer pricing method that is best suited to a specific transfer pricing case. Thus, it rightly allows transfer pricing on an approachable business basis. Transfer pricing should be evaluated with reliable data, functional analysis, conditions, the nature of the business, and comparative information.²²⁵ It can be interpreted from the OECD guidelines that it gives the taxable person free hands to compare transfer pricing methods, if it allows a result that is in line with arm's length principle. However, in the same OECD Transfer Pricing Guidelines, section 2.8 states that the choice of the most appropriate method does not require testing each method and performing a deep analysis of each method. In accordance with good practice, it is enough that the method can achieve the evidently result of arm's length principle.²²⁶

The OECD has published more detailed guidance on intangible assets that are difficult to make valuation. The guidance is called *Guidance for Tax Administrations on the Application of the Approach to Hard-to-Value Intangibles* (HTVI) and it has been made primarily for the tax authorities, but it can also help the taxpayer to solve valuation problem.²²⁷ The guidelines will introduce examples where, at the time of transfer, the object of transfer pricing is unfinished, the expected revenue will only be received years after the transfer, the lack of experience at the time of the transaction for the development of similar intangible assets and intangible assets will be developed using the cost sharing system.²²⁸ According to the HTVI guidelines of OECD, the expected incomes or cash flows of the remaining economic life of the product are discounted to present value in the transfer of unfinished intangible assets.²²⁹

²²⁵ OECD 2017b: 97 paragraph 2.2

²²⁶ OECD 2017b: 99 paragraph 2.8

²²⁷ Raunio & Karjalainen 2018: 249, OECD (2018): 12

²²⁸ Raunio & Karjalainen 2018: 249, OECD (2018): 15-17

²²⁹ OECD (2018): 15

Often, valuation is done by at least two or more methods simultaneously to ensure that the arm's length principle is followed.²³⁰ However, the OECD guidelines do not require the use of more than one method, if one method can prove the arm's length principle is followed well enough. Especially in complex valuation issues, it is recommended to use several methods.²³¹ When the algorithms SKCS and MRCS are unfinished, the valuation method should be the income-based valuation approach for the remaining economic life income generated after the sale. The choice is based on the THVI guidelines.²³² Furthermore, Supreme Administrative Court has noticed in case KHO 2014:33 that discounting the FCF in NPV method is basically acceptable method for valuation of businesses.²³³ The income-based method is designed to determine the present value of future net income through economic life, income and expenses. The important thing in the method is to carefully define the economic life, income and expenses. Likewise, the interest rate must be determined according to the arm's length principle in order to have a reliable view.²³⁴

In addition to NPV method, alternative method will be cost-based valuation approach that defines the costs of both algorithm development and the subsequent costs. As noted earlier, the cost is the theoretical minimum basis for the sales price.²³⁵ However, it is unlikely that arm's length principle-based price will be used to calculate the cost, so it cannot be considered a very worthwhile method. This is because, cost-based method does not reflect market conditions properly.²³⁶ The Market Approach method could be agreed if there were open information available on similar technology acquisitions and those acquisitions would be sufficiently new or differences from acquisitions could eliminate reliably enough in price.

In theory, the chosen valuation could also be the market approach but using of it requires comparable information and prices of similar intangible trades among the independent companies.²³⁷ There are some requirements for using market approach. By using market

²³⁰ Raunio & Karjalainen 2018: 234

²³¹ OECD 2017b: 100, paragraph 2.12

²³² OECD 2018: 15

²³³ KHO 2014:33

²³⁴ Raunio & Karjalainen 2018: 236

²³⁵ Pankakoski 2018: 188

²³⁶ Raunio & Karjalainen 2018: 235

²³⁷ Boos 2003: 78

approach in valuation, there should proper similar markets exist. Furthermore, comparable transaction should be done by arm's length principle in existing markets. In addition to these requirements, commercial terms and timing should be known when comparing the transactions with independent parties. In addition, political, environmental and economic conditions should be considered when comparing transactions with each other.²³⁸ According to the product manager who is developing SKCS (Appendix 2) and Sales Manager of MRCS (Appendix 3), there are no direct open markets for completely new products to compare with. According to the sales managers (Appendix 2 and Appendix 3), there are some competitors, but there is hardly any information about their corresponding business and some of them operate aboard and outside Europe, when obtaining relevant information is even more difficult. Therefore, it is difficult to use market approach for valuation of SKCS and MRCS algorithms when open markets are not exists and public data are not available.

6.3.2 What are the most appropriate methods for licensing?

As previously noted in section 6.2, SKCS and MRCS algorithms have already been provided to some third parties in a licensing format, so the view of an existing market has already evolved although the comparable commodities are not publicly available. According to *The OECD Transfer Pricing Guidelines for multinational enterprises and tax administrations 2017*, the CUP method can be applied in pricing to both controlled transactions and uncontrolled transactions if it meets at least one of two conditions. If there is no substantial difference between these transactions, or if there is a difference, it can be corrected with high certainty in the pricing as much as it is relevant.²³⁹ The pricing adjustment also applies to the terms of delivery, which means that they must also be responsible in the intra-group trade for what would be agreed between uncontrolled parties. Thus, a difference in delivery terms may be a reason to change the price or delivery terms.²⁴⁰

²³⁸ Boos 2003: 79; Raunio & Karjalainen 2018: 236

²³⁹ OECD 2017b: 101, paragraph 2.15

²⁴⁰ OECD 2017b: 103, paragraph 2.20

Therefore, it is fair to use the same price and terms of delivery for intra-group transactions when licensing SKCS or MRCS algorithms to another intra-group company. Therefore, the transfer price should also be updated for new licenses when the product changes or the license is sold to independent parties at different prices or on different delivery terms. It is assumed that the product does not differ significantly in intra-group transactions from transactions with independent companies. As earlier stated in section 4.1.1, the CUP method is considered the most straightforward and reliable method following arm's length principle by far when the company has similar trades between direct suppliers or customers who are independent parties.²⁴¹

In complex situations, The OECD Transfer Pricing Guidelines allow to use valuation methods that derive from standard transfer pricing method or to use combinations of different methods that appropriate for situation and prevailing conditions, if they can be achieved the result, which lead in arm's length principle. However, the OECD Transfer Pricing Guidelines do not require to use more than single method in transfer pricing. Otherwise, it could lead to unreasonable burden of proof on taxpayer.²⁴²

For the valuation, a combination of CPL and RFR methods was chosen as an alternative transfer pricing method. In the thesis, an alternative method is another transfer pricing method if the reason or another primary transfer pricing method cannot be used under the prevailing conditions. The combination of CPL and RFR methods in the thesis was based on the nature and pricing of the license agreement, which can be divided into two components; pre-paid initial payment, which covers, for example, technological equipment, their installation, transportation, usage training, testing, warranty and ongoing fixed license fee for access to the software. Continuous license fee is a fixed annual fee and is paid for as long as the other party has access to the software and hardware it has acquired under the agreement.

Both algorithms are completely unique and utilizes new technologies, so it is challenging to adequate good comparable from open markets. As previously mentioned, TNMM does

²⁴¹ Kukkonen & Walden 2016: 201

²⁴² OECD 2017b: 100, paragraph 2.12

not require similarity of transferring items, but it demands profit margins (usually EBIT), which follows arm's length principle.²⁴³ It can be calculated from the financial statements of a company doing almost similar business. The risks must also be roughly similar so that the profit can be arm's length principle based.²⁴⁴ If necessary, adjustments are made to the profits to verify market conditions.²⁴⁵

In principle, TNMM could be also alternative method for valuing the SKCS and MRCS, but in practice, it would not work. There should be internal comparable exist, which is enough similar about operations or there should know competitors' or other companies' operations enough well that could utilities their financial statements to define acceptable profit for licenses. Hence, it is very difficult to use TNMM when there is no relevant information available their corresponding business and operation. In prevailing condition, the combination of CPL and RFR is only alternative method for SKCS and MRCS.

	Algorithm SKCS		Algorithm MRCS	
	Primary method	Alternative method	Primary method	Alternative method
Transferring of all rights	NPV: MPEEM	N/A	NPV: MPEEM	N/A
Licensing	CUP	CPL+RFR	CUP	CPL+RFR

Table 1. Chosen methods for transfer pricing.

The above Figure 1 shows the methods for making value determination both algorithms in both transferring ways. Valuation methods were chosen in two ways in each case to verify the arm's length principle. The results are indicative price ranges where the arm's length principle would put into practice. However, NPV gives also a lot of different valuation results when sensitive analysis will be done by using changing WACC and eternal growth percent parameters. Using an alternative method for transferring of all rights is complicated and it is not compulsory if primary method can be achieved result which follows arm's length principle. Hence, SKCS and MRCS are marked N/A which means not available.

²⁴³ Raunio & Karjalainen 2018: 128

²⁴⁴ Jaakkola et al. 2012: 83

²⁴⁵ Raunio & Karjalainen 2018: 129

6.4 Making of valuation by chosen methods

6.4.1 Transferring of all rights

As a principle for valuation, the value of going concern can be considered as the company's business will continue in the future even after the transfer pricing transaction. Otherwise, the valuation should be done by liquidation value method where the assets of the company will be sold, and net assets will be summarized, or net present value will be calculated until business ends.²⁴⁶ In this case, business has going concern assumption, when there is no information about ending business. The value of the valuation method is essentially influenced by the conditions of the valuation method and the choice of the valuation method, because different valuation methods considers different ways the factors, which have an effect on result.²⁴⁷ The discounted cash flow model is the best method in theory, as it can be considered as a transparent and objective method. The sensitivity of different factors affects the outcome.²⁴⁸ Furthermore This method is described earlier in chapter 5.1.

However, the Multi-Period Excess Earnings Method (MPEEM) is selected for the study, which applies the further valuation of intangibles than common DFC method. The MPEEM method seeks to distinguish only cash flows generated by intangible rights and to calculate their net present value.²⁴⁹ MPEEM also considers other assets of the company that it needs to produce intangible assets, even though they are not directly related to intangible assets. In MPEEM, these assets are called Contributory Assets Charges (CAC) and their costs are also considered in the valuation of intangible assets. The CAC calculation calculates the change in other assets such as working capital, tangible assets, other intangible assets during the accounting period. The excess charges in the CAC calculation are the excess earnings allocated to intangible assets from other assets.²⁵⁰

²⁴⁶ Jaakkola et al. 2012: 313

²⁴⁷ Jaakkola et al. 2012: 313

²⁴⁸ Jaakkola et al. 2012: 314

²⁴⁹ Jaakkola et al. 2012: 325; Pratt et al. 2014: 764-765

²⁵⁰ Jaakkola et al. 2012: 325; Pratt et al. 2014: 765

For business, valuation is mainly done for a 3-5 year normalized net profit forecast if there is no better information available. This is considered a normal tax practice.²⁵¹ Cash flow forecasts are expected to predict future economic performance. The aim is to reach the everlasting growth rate of the terminal value when assessing development of future cash flows. Assumptions should be structured according to the expectations about company's financial performance.²⁵²

However, it is often difficult to define a practical lifetime for intangible assets.²⁵³ Also, none of the interviewees were able to say how long the lifetime of SKCS and MRCS has in business industry (Appendix 2 and 3). This is because their life cycle may take several generations, so their interest rate, expected income and expenditure should be determined for all their accounting periods. The market value of technology tends to fall after some decades of commercialization due to obsolescence. Instead, the value of brands is growing because getting a good reputation often results from decades of work.²⁵⁴

The study generally uses a five-year assessment of free cash flows approved for taxation purposes. As described in section 5.1, the valuation in MPEEM, which is under income approached method and free cash flow model, consists of four different components; expected free cash flows, determination of discount rate, determination of terminal value and fourth sensitivity analysis.²⁵⁵ For example, when determining the value of a young company, it is not unusual that the terminal value represents more than 100% of the value of the company.²⁵⁶ The sensitivity analysis examines how the end result changes, between two variables when obtaining different values.²⁵⁷ It is used to estimate the reliability of the end result and to calculate some range of variation.²⁵⁸ In this case, the sensitivity analysis could be used, for example, in WACC and growth calculations. The WACC method

²⁵¹ Jaakkola et al. 2012: 305

²⁵² Seppänen 2017: 218

²⁵³ Boos 2003: 86

²⁵⁴ Boos 2003: 84, 86

²⁵⁵ Seppänen 2017: 201; Pratt et al. 2014: 765

²⁵⁶ Damodaran 2009: 10

²⁵⁷ Seppänen 2017: 297

²⁵⁸ Seppänen 2017: 298

considers the capital structure and the average cost of capital. The value obtained in the WACC calculation is used as the discount rate.²⁵⁹

The application of the MPEEM, under the DCF method, must start with the assessment of free cash flows in the same way as the valuation of the entire company would do. As in the valuation of a business transaction, the generated income, expenses and cash flows of the algorithms as well as its operational assets and liabilities can be distinguished from the corresponding items of its non-operational activities and financing.²⁶⁰ After that, any excess income will be discounted to its present value using an appropriate internal rate of return (WACC), which takes into account the return on equity and debt and their structure or Weighted Average Return on Assets (WARA), which takes into account all the other assets of the company.²⁶¹ As a process, the valuation of intangible assets does not make a difference with in valuing the whole performing company. In the same process, all the functions, operations, risks, duration closely related to individual intangible assets and expected cash-flows generated by intangible assets must be assessed in WARA. Furthermore, their how all the assets interact together in the context of business must be assessed.²⁶²

In WARA method, the rate of return is calculated as sum from all the separate assets and their returns of the company. All the assets are separated, and they will be assessed appropriate return. The result of WARA method should reconcile with result of WACC of the entity, otherwise the returns are not in balance.²⁶³ Typically, the intangible assets have higher rate of return than tangible assets.²⁶⁴ Hence, WARA and WACC will be used in NPV calculation when assessing appropriate discount rate for SKCS and MRCS intangible assets. The method for calculating the NPV has been introduced in Section 5.1. The next table (Table 2) illustrates, how WARA and WACC has been calculated for valuation of SKCS and MRCS.

²⁵⁹ Seppänen 2017: 226-227

²⁶⁰ Seppänen 2017: 205

²⁶¹ Pratt et al. 2014: 765, 772

²⁶² Pratt et al. 2014: 771

²⁶³ Pratt et al. 2014: 772-773

²⁶⁴ Pratt et al. 2014: 773

Weighted Assets Return Analysis (WARA)	Value	Weight on Assets (%)	Contribution to WACC	
R&D Algorithms (SKCS & MRCS)*	0,5	3 %	4,0 %	
Brand*	1,0	6 %	1,5 %	
Other intangible Assets*	0,5	3 %	1,5 %	
Existing customers*	0,5	3 %	2,0 %	
Land & Buildings*	3,5	20 %	0,5 %	
Property, plants & equipments*	0,5	3 %	1,0 %	
Under construction*	0,5	3 %	0,5 %	
Investments*	0,5	3 %	1,0 %	
Working capital*	3,5	20 %	0,5 %	
Cash & Equivalents*	3,0	17 %	0,0 %	
Workforce*	3,5	20 %	3,5 %	
Enterprise Value (EV)	17,5	1,0	16,0 %	
*Figures are rounded to the nearest half million				
Cost of Capital	Value	Required	Cost of Capital	
Equity*	13,5	25,0 %	12,5 %	
Long-term Debt*	4,0	7,0 %	3,5 %	
Total Value	17,5	16,00 %	16,0 %	WACC
*Figures are rounded to the nearest half million				

Table 2. WARA and WACC accounting for SKCS and MRCS.

The value numbers for the Table 2 have been gathered together from the financial administration of case organization. The same WACC and WARA for SKCS and MRCS can be used for discount rate when making valuation. This is because both algorithms use the same underlying resources and assets of the company to generate income for the organization, because this was instructed to work on the previous page. The demanded returns of every individual assets are assessed in the context of business. Although some tangible assets, for example Land & Buildings, make up the significant part of all the tangible assets, their importance for the SKCS and MRCS algorithms are not that remarkable in the same context. In cost of capital part, costs of Equity have been calculated with CAP model and cost of Long-term Debt has been calculated with weighted interest-bearing. Hence, WACC is in the same line with WARA.

Free Cash Flows (FCF) can vary significantly in different years, when cash flow predictions are better done indirectly than directly. This means that the balance sheet and profit

and loss account have assumptions to assess the profitability of the business, future investments, committed capital, capital structure and the cost of interest-bearing debt. After all, the measure is very mechanical, but requires a comprehensive understanding of accounting principles, carefully estimated assumptions about the development of accounting items, and consistency.²⁶⁵

Excess Earnings - Technology - SKCS	2019	2020	2021	2022	2023	Terminal value
Revenue**	0,0	1,0	2,6	6,8	11,0	14,9
Costs of goods sold	-0,3	-1,0	-1,8	-6,2	-11,0	-13,4
Service & Materials	0,0	-0,1	-0,3	-1,0	-1,8	-2,5
General & Administration	-0,3	-0,4	-0,4	-0,4	-0,4	-0,5
Development of SKCS	-0,6	-0,8	-0,9	-0,9	-1,0	-1,1
EBITDA	-1,1	-1,3	-0,7	-1,7	-3,1	-2,7
Depreciations	0,0	0,0	0,0	-0,1	-0,1	-0,1
EBIT	-1,1	-1,3	-0,7	-1,8	-3,2	-2,8
Taxes (tax rate 20%)	0,0	0,0	0,0	0,0	0,0	2,2
Net Income	-1,1	-1,3	-0,7	-1,8	-3,2	-0,6
Contributory Asset Charges (CAC)						
Changes in Intangible Assets	0	0	0	0,1	0,1	1,0
Changes in Land & Buildings	5,7	3,3	1,3	0,2	0,1	0,0
Changes in Property, plants & equipments	0	0,5	0,5	0,5	0,5	0,3
Changes in Under Construction	3,6	2,2	1,4	0,8	0,4	0,2
Changes in Investments	0	0	0	0	0	0
Changes in Working capital	0,2	0,3	0,5	1,3	2,3	3,0
Changes in Workforce	0	0,5	0,5	0,5	0,0	0,5
Free Cash Flows (FCF)	8,4	5,5	3,5	1,6	0,2	4,4
Long-term Growth						2,00 %
WACC						16,0 %
Discounted Cash Flows	7,2	4,1	2,2	0,9	0,1	31,4
Present Value of Excess Earnings	45,9					
*Figures are rounded to the nearest half million						
**Revenue has calculated from internal forecasts, expected returns and market studies						

Table 3. Present value of SKCS in MPEEM.

Table 3 above shows what the present value of SKCS could be if its expected cash flows were discounted to the present. The relevant data for the valuation has been received from the interviewed personnel (Appendix 2) and project accounting from financial administration of case organization. The assumption is that the life cycle of the technology is perpetual and there is no technical obsolescence during the life cycle. Discount rate is calculated by using the WACC and WARA methods, which consider the structure and cost of equity and debt and expected returns of all the separate assets of the company. It

²⁶⁵ Seppänen 2017: 204; Pratt et al. 2014: 765

can be seen from the table that the value of SKCS is remarkably high compared to its annual returns and expenses. According to the sales manager and product manager (see Appendix 2), the changes in annual returns and expenses can be significant at the early stage of business when the starting point of sales is practically nothing. Thus, it can be concluded that annual changes in sales are significant and the market value is largely based on future expectations. This is because most of the market value consists of a terminal value that describes eternal growth.

SKCS	Sensitive analysis	WACC												
		8 %	9 %	10 %	11 %	12 %	13 %	14 %	15 %	16 %	17 %	18 %	19 %	20 %
L o n g - t e r m G r o w t h	0,20 %	73	66	61	56	53	50	47	44	42	40	39	37	36
	0,40 %	74	67	62	57	53	50	47	45	43	41	39	38	36
	0,60 %	76	69	63	58	54	51	48	45	43	41	39	38	36
	0,80 %	78	70	64	59	55	51	48	46	43	41	40	38	37
	1,00 %	79	71	65	60	55	52	49	46	44	42	40	38	37
	1,20 %	81	73	66	61	56	52	49	47	44	42	40	39	37
	1,40 %	83	74	67	62	57	53	50	47	45	42	41	39	37
	1,60 %	85	76	68	63	58	54	50	48	45	43	41	39	38
	1,80 %	87	77	70	64	59	54	51	48	45	43	41	39	38
	2,00 %	90	79	71	65	59	55	52	49	46	44	42	40	38
	2,20 %	92	81	72	66	60	56	52	49	46	44	42	40	38
	2,40 %	95	83	74	67	61	57	53	50	47	44	42	40	39
	2,60 %	98	85	75	68	62	58	54	50	47	45	43	41	39
	2,80 %	101	87	77	69	63	58	54	51	48	45	43	41	39
	3,00 %	104	90	79	71	64	59	55	51	48	46	43	41	40
	Minimum value	36												
	Maximum value	98												
	Average value	54												
	Median value	50												

Table 4. Sensitivity analysis of SKCS in transferring of all rights.

Table 4 above shows a SKCS sensitivity analysis in which the variables are WACC and the percentage of growth. Numbers are rounded to the closest million. The market value changes when WACC and growth rate get different values in NPV method. It can be seen from the table that the market value of SKCS decreases as the WACC increases. Similarly, the market value of SKCS is increasing, and the growth rate used at terminal value is increasing. A minimum value, a maximum value, average and median value can be found in the table. Probably average and median value are reflecting better market conditions than absolute maximal or minimum value.

Pankakoski writes about positive and negative interpretation about arm's length principle in her doctoral thesis. According to that doctoral thesis, positive interpretation considers individual factors in the case, when valuing the assets in its circumstances. As well, negative interpretation results in wide range of many opinions and disputes what is right value for arm's length principle. After all, acceptable valuation in arm's length principle depends how widely or narrowly arm's length principle is interpreted. Hence, arm's length principle must be interpreted in positive way, because absolute value cannot reach in practice.²⁶⁶ Next, the MRCS valuation will be done same way than SKCS valued previously.

Excess Earnings - Technology - MRCS	2019	2020	2021	2022	2023	Terminal value
Revenue**	0,0	0,8	2,2	5,2	10,2	15,6
Costs of goods sold	-0,1	-0,1	-0,2	-0,5	-1,1	-1,7
Material & Services	0,0	-0,1	-0,2	-0,8	-1,4	-2,0
General & Administration	-0,3	-0,3	-0,3	-0,4	-0,4	-0,5
Development of MRCS	-4,0	6,0	-2,0	-0,5	-0,5	-4,0
EBITDA	-4,4	6,3	-0,5	3,0	6,8	7,4
Depreciations	0,0	-0,5	-0,5	-1,0	-1,5	-1,5
EBIT	-4,4	5,8	-1,0	2,0	5,3	5,9
Taxes (tax rate 20%)	0,0	-1,2	0,0	0,4	-1,1	-1,2
Net Income	-4,4	4,6	-1,0	2,4	4,2	4,7
Contributory Asset Charges (CAC)						
Changes in Intangible Assets	0	0	0	0,1	0,1	1,0
Changes in Land & Buildings	3,6	3,3	1,3	0,2	0,1	0,0
Changes in Property, plants & equipments	0	0,5	0,5	0,5	0,5	0,3
Changes in Under Construction	3,6	2,2	1,4	0,8	0,4	0,2
Changes in Investments	0	0	0	0	0	0
Changes in Working capital	0,2	0,3	0,5	1,3	2,3	3,0
Changes in Workforce	0	0,5	0,5	0,5	0,0	0,5
Free Cash Flows (FCF)	3,0	11,4	3,2	5,8	7,6	9,7
Long-term Growth						2,00 %
WACC						16,0 %
Discounted Cash Flows	2,6	8,5	2,1	3,2	3,6	69,1
Present Value of Excess Earnings	89,0					
**Revenue has calculated from internal forecasts, expected returns and market studies						

Table 5. Present value of MRCS in MPEEM.

Table 5 above illustrates expected future cash flows of MRCS. The relevant data for the valuation has been received from the interviewed sales manager (Appendix 3) and financial administration of case organization. The table is very similar to the previous SKCS case. The used interest rate in valuation is the company's WACC and WARA. That rate

²⁶⁶ Pankakoski 2018: 219

is used to discount expected cash flows to the present value. As previously, the terminal value represents most of the market value of MRCS. This is because, valuation of business is usually acceptable for 3-5 years in taxation, but the cash flows are expecting growing significantly after estimated 5 years.²⁶⁷ In mutual comparison, MRCS seems to be significantly more valuable than SKCS if it will be transferred of all rights in its net present value.

MRCS	Sensitive analysis	WACC												
		8 %	9 %	10 %	11 %	12 %	13 %	14 %	15 %	16 %	17 %	18 %	19 %	20 %
Long-term growth	0,20 %	148	134	122	112	104	97	91	86	81	77	73	70	67
	0,40 %	152	136	124	114	105	98	92	87	82	78	74	70	67
	0,60 %	155	139	126	116	107	99	93	88	83	78	75	71	68
	0,80 %	159	142	128	117	108	101	94	88	84	79	75	72	68
	1,00 %	163	145	131	119	110	102	95	89	84	80	76	72	69
	1,20 %	167	148	133	121	112	103	96	90	85	81	77	73	70
	1,40 %	171	151	136	123	113	105	98	91	86	81	77	73	70
	1,60 %	176	154	138	125	115	106	99	93	87	82	78	74	71
	1,80 %	180	158	141	128	117	108	100	94	88	83	79	75	71
	2,00 %	186	162	144	130	119	109	101	95	89	84	79	75	72
	2,20 %	191	166	147	132	121	111	103	96	90	85	80	76	72
	2,40 %	197	170	150	135	123	113	104	97	91	86	81	77	73
	2,60 %	204	175	154	138	125	114	106	98	92	87	82	77	74
	2,80 %	210	180	157	141	127	116	107	100	93	88	83	78	74
	3,00 %	218	185	161	143	129	118	109	101	94	88	83	79	75
	Minimum value		67											
	Maximum value		218											
	Average value		108											
	Median value		99											

Table 6. Sensitivity analysis of MRCS in transferring of all rights.

Table 6 above illustrates MRCS sensitivity analysis and numbers are rounded to the closest million. The variables are WACC, which reflects the risk and the growth rate that reflects growth. As before, the market value of MRCS decreases when WACC grows. Similarly, as the growth rate decreases, the market value decreases. Average and median value is probably closer market value than minimum and maximum value. In both cases, the sensitivity analysis table shows that the changes are significant in millions if WACC or Long-term Growth is changed by 1 percent unit one way or another. Thus, it is difficult to give absolute truth when even small changes in sensitive analysis can have a significant effect on the outcome.

²⁶⁷ Jaakkola et al. 2012: 305

In the previous section 6.3.1., it was found that the cost of developing intangible rights constitutes the minimum basis for the valuation of algorithms.²⁶⁸ Thus, it can be considered acceptable that transferring of all the rights related to algorithms in the should receive as much compensation as costs have generated. Thus, it is possible to calculate the costs incurred over the years for each algorithm and find it to be of minimal economic value. The method would seem quite simple and open if there are no mistakes in project accounting. The cost-based method can be applied to theoretical circumstances for the intangible assets. It can be applied for example in acquisition situation if it will be transferred to another party immediately after acquisition.²⁶⁹ It is recalled that the CB method is secondary if, for one reason or another, the NPV method cannot be used in the valuation. In this study cost-based method is not recommended to use. Under these circumstances, NPV can be considered as a preferred valuation method, and it is also the primary valuation method.

6.4.2 Licensing

The Review of the SKCS and MRCS licenses and their markets has been done by interviewing the target organization's personnel who are working close with both technologies. For the study, interview questions can be found in Appendix 2 and Appendix 3. The idea behind the interview is that they know both technologies and markets well and understand the potential they have when commercializing SKCS and MRCS. According to the sales manager, who have been interviewed in Appendix 2, both SKCS and MRCS technologies operate on the same market. The both technologies have been decided to sell hardware as initial payment and sell multi-year license software for use. The fixed license fee is paid annually and covers the use of the software by one user and possible product updates during the term of the license. License agreements for SKCS and MRCS can be renewed after expiring.

²⁶⁸ Pankakoski 2018: 188

²⁶⁹ Karjalainen 2018: 235; Pankakoski 189

The OECD Transfer Pricing Guidelines provide guidance on the use of the CUP method for transfer pricing as the primary method, if possible.²⁷⁰ Therefore, the same content and commercial terms should be used in the transfer pricing of SKCS and MRCS that is used for licensing to external parties. Thus, if the content of the technology offered to third parties' changes over the years, for example due to technological developments, the group company must be provided with the same content as it is offered to third parties. If the content of the transfer pricing item or the commercial terms, for example, in the case of a guarantee, differ from those provided to customers, the difference in that respect should also be corrected in the pricing.²⁷¹ This guidance applies to both algorithms.

If, for one reason or another, the CUP method could not be used for both algorithms, the secondary method could be a combination of CPL and RFR method. Such a situation could arise if SKCS or MRCS would not be licensed at all to any independent parties or the total solutions licensed to third parties would be so different from the licensed solutions within the group that the price could not be reasonably changed on arm's length principle. Likewise, a CUP may not be used if a similar product produced by a competitor has not entered the market. Thus, the CUP method would be almost impossible to use.

According to interviewed person in Appendix 2, both licenses of the algorithm also contain some hardware and equipment demanding computing power to work properly. The equipment and the company are purchased from outside the Group and offered as part of the license agreement. When they are sold at the same price and commercial terms as they were purchased without extra profit margins, there is no need to make any changes for transfer pricing, because their market price is determined by independent parties.

If a profit margin is added to the price of the equipment purchased and the work is required before selling the license to another intra-group company, it will change the situation essentially. When the hardware and equipment of SKCS and MRCS are delivered to an external party with profit margin, the valuation method for the devices should be done by the CPL method and for the license the RFR method. However, the used profit

²⁷⁰ OECD 2017b: 101 paragraph 2.15

²⁷¹ OECD 2017b: 101 paragraph 2.15

margin of the delivered equipment, hardware and work in CPL must follow arm's length principle as well. The vendor of the product and/or license should earn a similar profit margin added to costs in the intra-group business than the same vendor would receive for the sale product and/or license outside the intra-group company.²⁷²

The best source of comparable royalty and profit margin database can be found from the websites of authorized financial data providers, for example Amadeus Bureau van Dijk, EdgarStat, Thomson Reuters or Royalty Range. They provide anonymous and reliable financial data in help of clients to define the price of transfer pricing transactions.²⁷³ Unfortunately, there is no access to comparable royalty and profit margin databases for clients who are not willing to pay high fees about their services. The database is primarily intended to business-to-business clients and many of them demand registration, offer and agreement before to get access to database. Hence, that necessary information cannot afford to use for this study.

A combination of CPL and RFR methods was decided to choose as an alternative method in section 6.3.2. Valuation of SKCS and MRCS must be done in parts because it is a combination of two different methods. This is because the license agreement consists entirely of two parts, which differ from each other remarkable way. First, in the CPL method, valuation is an essential part of defining an acceptable cost base and an arm's length principle-based profit margin on it. Secondly, it is necessary to define an arm's length principle-based sales price for the annual fixed license fee in RFR method. In intra-group licensing, the profit margin added to costs and license fee should be same than selling the fixed license outside intra-group company.

In the CPL method, the transfer price is calculated based on the cost of producing the product or service and arm's length principle-based profit margin is added to costs.²⁷⁴ The profit margin must be reasonable to the carried risks, operations and resources that

²⁷² Raunio & Karjalainen 2018: 122

²⁷³ Jaakkola et al. 2012: 323

²⁷⁴ Collin et al. 2017: 648

organization has used to produce product or service. Normally, the profit margin is defined as the percentage of the gross margin on costs.²⁷⁵ The cost base includes direct costs as such. In addition to direct costs, a calculated part of indirect costs is added to the cost base of product.²⁷⁶ The next example shows in case of SKCS how it would practically work.

	Initial SKCS	License					
SKCS Setup - Only costs	Setup	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total
Direct Material costs	-12 750	0	0	0	0	0	-12 750
Direct Personnel costs	-2 627	0	0	0	0	0	-2 627
Direct License fees	0	-125	-125	-125	-125	-125	-625
R&D Costs for SKCS product updates	0	-250	-250	-250	-250	-250	-1 250
Maintenance costs	0	-300	-300	-300	-300	-300	-1 500
General & Administration Charges (4%)	-720	0	0	0	0	0	-720
Warranty fee (2,5%; 18 months)*	0	-319	-159		0	0	-478
Direct Sales & Marketing costs	-400	0	0	0	0	0	-400
Other indirect costs***	0	-200	-200	-200	-200	-200	-1 000
Total	-16 497	-1 194	-1 034	-875	-875	-875	-20 351
*Charge is only accountable value							
**Any taxes are not considered in calculations							
***Rent, electricity, water, insurances, internet etc.							
	Transfer pricing method						
	CPL	RFR					
	Initial	License***					
SKCS Setup - Profit margin added to incurred costs	SKCS	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total
Only incurred costs*	16 497	1 194	1 034	875	875	875	21 351
5 %	17 322	1 253	1 086	919	919	919	22 418
10 %	18 147	1 313	1 138	963	963	963	23 486
15 %	18 972	1 373	1 190	1 006	1 006	1 006	24 553
20 %	19 797	1 433	1 241	1 050	1 050	1 050	25 621
25 %	20 622	1 492	1 293	1 094	1 094	1 094	26 688
30 %	21 447	1 552	1 345	1 138	1 138	1 138	27 756
35 %	22 271	1 612	1 396	1 181	1 181	1 181	28 823
40 %	23 096	1 671	1 448	1 225	1 225	1 225	29 891
45 %	23 921	1 731	1 500	1 269	1 269	1 269	30 958
50 %	24 746	1 791	1 552	1 313	1 313	1 313	32 026
55 %	25 571	1 850	1 603	1 356	1 356	1 356	33 093
60 %	26 396	1 910	1 655	1 400	1 400	1 400	34 161
*Based on directly and indirectly generated costs							
**Any taxes are not considered in calculations							
***License fee is based on percentage of amount of initial payment							

Table 7. The combination of CPL and RFR for fixed license fee of SKCS.

Table 7 above consists of two parts. The numbers in Table 7 have been gathered from profitability calculations and by interviewing Sales Manager and VP in Sales and Marketing (see Appendix 2). The upper part illustrates the cost of SKCS licensing for several

²⁷⁵ Raunio & Karjalainen 2018: 121

²⁷⁶ Kukkonen & Walden 2016: 205

years, and the lower part calculates the Initial Setup price including the profit margin. Initial Setup costs are separated from the license cost. In the CPL method, the SKCS transfer pricing is based on the total cost shown in the table. The SKCS Initial Setup and Fixed License Fee sales price will increase as the profit margin percentage on the left increases by X percent. From the perspective of arm's length principle, the transfer price of the SKCS license fee can be defined as either the percentage of annual costs or a fixed percentage of the initial setup's price.

From the cost accounting perspective, fixed license fee with 40 % profit margin could be 1225-1671€ each year. That profit margin could be appropriate profit margin and it covers all the risks, operations, functions, R&D investments enough well that have needed to generate income in those early stage developing markets. On the other hand, appropriate profit margin for license can be defined as a percent from the point of SKCS initial setup's view. In the RFR method, databases can be used to define arm's length principle-based profit margin for the license, and the database is searched for the winnings of similar transactions and they are used for the transfer pricing of the SKCS licenses. At the end, the most important is to find enough similar transaction from the database and use that data in transfer pricing in the name of arm's length principle. Let us go through next table about licensing of MRCS.

	Initial MRCS								
		License							
MRCS Setup - Only costs	Setup	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	Total
Direct Material costs	-11 000	0	0	0	0	0	0	0	-11 000
Direct Personnel costs	-1 420	0	0	0	0	0	0	0	-1 420
Direct License fees	0	-250	-250	-250	-250	-250	-250	-250	-1 750
R&D Costs for MRCS product updates	0	-750	-750	-750	-750	-750	-750	-750	-5 250
Maintenance costs	0	-250	-250	-250	-250	-250	-250	-250	-1 750
General & Administration Charges (4%)	-50	0	0	0	0	0	0	0	-50
Warranty fee (2,5%; 24 months)*	0	-275	-275		0	0	0	0	-550
Direct Sales & Marketing costs	-400	0	0	0	0	0	0	0	-400
Other indirect costs***	0	-250	-250	-250	-250	-250	-250	-250	-1 500
Total	-12 870	-1 775	-1 775	-1 500	-1 500	-1 500	-1 500	-1 500	-22 170
*Charge is only accountable value									
**Any taxes are not considered in calculations									
***Rent, electricity, water, insurances, internet etc.									
	Transfer pricing method								
	CPL	RFR							
	Initial	License***							
MRCS Setup - Profit margin added to incurred costs	Setup*	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	Total
Only incurred costs*	12 870	1 775	1 775	1 500	1 500	1 500	1 500	1 500	23 920
5 %	13 514	1 864	1 864	1 575	1 575	1 575	1 575	1 575	25 116
10 %	14 157	1 953	1 953	1 650	1 650	1 650	1 650	1 650	26 312
15 %	14 801	2 041	2 041	1 725	1 725	1 725	1 725	1 725	27 508
20 %	15 444	2 130	2 130	1 800	1 800	1 800	1 800	1 800	28 704
25 %	16 088	2 219	2 219	1 875	1 875	1 875	1 875	1 875	29 900
30 %	16 731	2 308	2 308	1 950	1 950	1 950	1 950	1 950	31 096
35 %	17 375	2 396	2 396	2 025	2 025	2 025	2 025	2 025	32 292
40 %	18 018	2 485	2 485	2 100	2 100	2 100	2 100	2 100	33 488
45 %	18 662	2 574	2 574	2 175	2 175	2 175	2 175	2 175	34 684
50 %	19 305	2 663	2 663	2 250	2 250	2 250	2 250	2 250	35 880
55 %	19 949	2 751	2 751	2 325	2 325	2 325	2 325	2 325	37 076
60 %	20 592	2 840	2 840	2 400	2 400	2 400	2 400	2 400	38 272
*Based on directly and indirectly generated costs									
**Any taxes are not considered in calculations									
***License fee is based on percentage of amount of initial payment									

Table 8. The combination of CPL and RFR for fixed license fee of MRCS.

The above table, in turn, shows a unit costs and sales prices for MRCS with different profit margin. The numbers in Table 7 have been gathered from profitability calculations and by interviewing Sales Manager (see Appendix 3). The table is very similar to the previous one, and its arm's length principle-based transfer pricing does not differ significantly from SKCS's transfer pricing. It should be remembered that this is only an alternative method for both, if the CUP method cannot be used for SKCS or MRCS for one reason or another. Hence, it is not recommended to use if it is comparable data available. The RFR method allows the MRCS to seek appropriate profit margin from international databases, but table above what would be the price with different profit margins. An appropriate profit margin could roughly same than previously in SKCS. That profit margin could be appropriate profit margin and it covers all the high risks, operations, functions, R&D investments enough well that have needed to generate income in those early stage developing markets.

6.5 Pre-emptive Discussion and Cross-Border Dialogue procurements related to transfer pricing in arm's length principle

In order to avoid disagreements, double taxation, tax disputes or transfer pricing adjustments afterwards, it is highly recommended to start Pre-emptive Discussion with the Large Taxpayer's Office. It operates under the Finnish tax authority. The Large Taxpayer's Office is the unit where The Pre-emptive Discussion procurement is a lighter and flexible way than preliminary ruling to approach the tax authority on tax issues. The initiative about Pre-emptive Discussion can be made by either party, or it does not matter although it would be changed to another process. In practice, any tax-related issues can be dealt with in the procedure. The taxpayer receives reasonable certainty and predictability in tax issues when the taxpayer presents to the tax authority the necessary information and the prevailing circumstances for the tax settlement.²⁷⁷

Hence, Pre-emptive Discussion procurement would be good to start immediately and present transfer pricing issues of the organization. It would be good to ask the tax authority whether they agree with the valuation method and the economic value of the transfer pricing from the perspective of arm's length principle. Furthermore, it would be good to show valuation methods have considered to use, relevant data and outcome of valuation. The role of transfer pricing documentation will increase in this situation and one key issue could be what and how documentation of algorithms in transfer pricing will be implemented. However, documentation of transfer pricing is outlined this study.

After that, the Finnish tax authority would understand what it is all about, under what circumstances, and what kind of transfer pricing method and valuation have been achieved. Taxpayers' certainty and predictability about taxation would increase if the tax authority advised them to act correctly at an early stage. In addition to certainty and predictability, transparency increases significantly from the both perspectives.²⁷⁸ Possibly Pre-emptive Discussion may lead to a preliminary referral in accordance with VML 85§

²⁷⁷ Waal 2017: 320-321

²⁷⁸ Waal 2017: 321

as described in section 3.1.2 of the thesis, where the taxpayer presents a potential tax issue to the Finnish tax authority and get a solution for the taxpayer's tax issue.²⁷⁹

In case of international transfer pricing, Cross-Border Dialogue procurement will become an issue. All the relevant countries' tax authorities and taxpayer are involved in Cross-Border Dialogue and target is to find in real time or in advance an appropriate tax treatment for the taxpayer's specific tax issue. Hence, taxpayer will receive some degree of certainty against disagreements and double taxation.²⁸⁰ It doesn't matter if the Cross-Border Dialogue is initiated by a taxpayer or a tax authority.²⁸¹ The relevant materials are submitted to Tax Authorities by taxpayer in order to solve specific tax issue. However, taxpayer is not involved mutual discussion with tax authorities, but instead involved tax authorities solve the tax issue together.²⁸²

6.6 The research results

The study produced valuations for the SKCS and MRCS algorithms under selected transfer pricing methods. However, the accuracy of their market value cannot be fully assured without comparable information or approval by tax authorities. Thus, case organization is better to be in contact with the tax authority, when there is no proper market exist for unfinished algorithms. If the transfer pricing of SKCS and MRCS is cross-border transfer pricing, it is better to know what the tax treaties of the involved states say about the transfer pricing of intangible assets. Hence, The Cross-Border Dialogue is an appropriate procurement to solve specific and problematic tax issue.

It was found in the study that the Act on Assessment Procedure, section 31§ is practically the only legal rule, which must obey, when assessing transfer pricing in Finnish legislation if the legal rule about documentation of transfer pricing is not considered. In addition, international perspective to transfer pricing was found in the study. The study brought out

²⁷⁹ Myrsky 2011: 164

²⁸⁰ Finnish Tax Administration 2018: 1

²⁸¹ Finnish Tax Administration 2018: 2

²⁸² Finnish Tax Administration 2018: 3

OECD guidance about Model Tax Convention, Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations, EU Tax Law, Relevance of arbitration agreements, Procedure about Advance Pricing Agreement and some preliminary rulings of the Supreme Administrative Court related to transfer pricing and valuation.

Among other things, the study revealed that Finland complied with the OECD guidelines on transfer pricing and EU law, which repeals Finnish legislation when they conflict with each other. Furthermore, countries can agree on mutual tax agreements where Member States agree on how they share taxable income between countries and agree on exchange of information on mutual procedure and agree on how to resolve disagreements.²⁸³ Also, tax agreements may prevent double taxation between involved countries, but at the same time it is ensured taxes will be paid somewhere.²⁸⁴ The prevention of double taxation and tax avoidance are one of the main principles in EU Tax law.²⁸⁵

The preliminary rulings of the Supreme Administrative Court related to transfer pricing and valuation in case of transfer of all rights and licensing were found from archive, but at this time, they were only little helped to this thesis. At case organization's request, study was brought out how to apply to preliminary ruling from the Finnish Tax Authority, just in case if they consider applying preliminary ruling before starting transfer pricing process. In the latter part of study, Pre-emptive Discussion and Cross-Border Dialogue were brought out and it was recommended as a first step for the case organization to take contact to the Finnish Tax Authority.

From the research point of view, it was important and valuable to interview key personnel who work closely with SKCS and MRCS. Without them, valuation could have been challenging. Furthermore, other financial data was given by financial administration to help in valuation. For the valuation method for transfer of all rights, NPV was chosen for the both algorithms. The alternative method for transfer of all rights was experienced very challenging. On the other hand, alternative method is not compulsory in transfer pricing,

²⁸³ Jaakkola et al. 2012: 29

²⁸⁴ Malmgrén & Myrsky 2017: 97

²⁸⁵ Helminen 2018: 55, 136

although it is recommended according to OECD Transfer Pricing Guidelines for multinational Enterprises and Tax Administration. The most important in transfer pricing, the chosen method can be achieved arm's length-based result in transfer pricing. For the licensing of algorithms, CUP-method was chosen for a primary method in transfer pricing and for an alternative method a combination of CPL and RFR if for one reason or another CUP method cannot be used in prevailing circumstances, which should be preferred first.

These research results are speculative, and they don't give absolute truth about the SKCS and MRCS. A year later, SKCS's and MRCS's market value and valuation method can be different than today. Research results cannot be generalized to all the intangible assets or either all the algorithms. They are appropriate for this case. The choosing valuation method and relevant data, which are used to valuation, influence remarkably way to the result. Furthermore, prevailing circumstances, local legislation, and OECD guidance may change over the years and thus they must be considered, too. In case of international transfer pricing, EU law, all the appropriate tax authorities and mutual tax agreements must be considered.

Also, different valuation makers can result in different result in valuation with same data, by the same method and in the same conditions. Hence, arm's length principle must be interpreted in positive way, because no one can define absolute truth for unfinished intangible asset. It can be stated afterwards whether valuation followed arm's length principle when there are no proper markets for unfinished and unique algorithms.

Summary table	Valuation			
	SKCS Primary	SKCS Alternative	MRCS Primary	MRCS Alternative
Transferring of all rights	46 million	N/A	89 million	N/A
Licensing	CUP method: It depends what is negotiated with clients	CPL method: SKCS Setup: 23096€, RFR Method: User license 1225€	CUP method: It depends what is negotiated with clients	CPL method: MRCS Setup: 18018€, RFR method: User license 2100€
*Any taxes are not considered in calculations				

Table 9. Valuation summary

All values for each algorithm are summarized in the above table 7 by both transfer methods. Transferring of all rights is significantly more valuable than its expected incomes for next 5 years. Thus, it can be said that market value of algorithms in NPV method is strongly based on its further expectations than only the next few years. This is because lot of expectations of SKCS and MRCS are loaded to terminal value, which make up valuation more than 5 years later.

In licensing, the arm's length principle-based price of the CUP method varies depending on what is sold to third parties. Thus, a single arm's length principle-based price may not necessarily exist if SKCS or MRCS licenses are sold to third parties under different solutions and commercial terms. The profit margin calculated by the combination of CPL and RFR method depends on the relevance of a comparable data from the database for both algorithms in objective perspective. In a combination of CPL and RFR, there is 40 percent profit margin added on cost base. That was previously given complexity operations, high risk technology, unfinished, not in existing markets, significant R&D investments reasons for reasonable profit margin. However, for verifying the arm's length principle of SKCS and MRCS, it is highly recommended to take contact in Finnish Tax Authority by using Pre-emptive Discussion or Cross-Border Dialogue before starting transfer pricing process.

Further study related to valuation of algorithms in transfer pricing could be many topics. Merely doing this same study one year later gives different results than today, because the circumstances, operations, high risks, functions and expected incomes have been probably somehow changed. Hence, the result cannot be same anymore. Furthermore, someone could make further study how the algorithms could document in transfer pricing or what tax agreements between Finland and other Member State says about transfer pricing of intangible assets. Furthermore, it is good further study topic to make comparison between Finland's and at least two other Member State's tax agreement, how do they make a difference in transfer pricing of intangibles. Some years later, it can be good topic, how Pre-emptive Discussions have worked with Finnish organizations according to employees who work at the Finnish Tax Authority.

The study results can at least partly be utilized in future, if the transfer pricing issues arise either in transfer of all rights or in licensing situation in case organization. In transferring of all rights of SKCS or MRCS, data may change constantly so their valuation should be updated. In licensing, case organization can be advised to use CUP-method as primary method for transfer pricing SKCS and MRCS. Alternatively, to use a combination of CPL and RFR, if CUP-method cannot be used for reason or another, but then they need to have access to relevant database do define acceptable profit margin. Furthermore, case organization is recommended to start Pre-emptive Discussion with the Finnish Tax Authority in order to prevent disagreements, tax disputes and wasting both parties' resources. Furthermore, it reduces chances to use transfer pricing adjustments for SKCS and MRCS.

7 SUMMARY AND CONCLUSIONS

The aim of the study was to choose the valuation methods for the case algorithms and make them valuation for possible transfer pricing as they are. The target was to make as objective valuation as possible, for reason it would be following arm's length principle. The verifying of arm's length principle in valuation will remain case organization's and tax authority's to be assessed. Hence, it is recommended to take contact in the Finnish Tax Authority before start transfer pricing process. In addition, the study had to clarify Finnish legislation, OECD rules and international guidelines on transfer pricing. If the case organization's transfer pricing will cross the borders of EU countries, tax agreements must be considered and both countries tax authorities must be informed.

It was crucial to interview key personnel and have fresh financial data to make SKCS and MRCS valuations. Good information was given about technologies, their potential markets, expected incomes, license agreements in the interviews. As stated earlier in the research results, the market value of unfinished intangible assets is somewhat speculative, and the value can be different over the time. The absolute result is difficult to comply, even though it is meant to be reached. It is easier to evaluate afterwards, how precise valuation it has been than in advance. The Finnish tax laws and the OECD Transfer Pricing Guidelines do not directly determine which valuation method should be used in each situation, so the taxpayer must decide for themselves.²⁸⁶ However, transfer pricing and must always be able to look at what independent parties would agree in a similar situation. Objectively verifiable valuation, which follows arm's length principle, is the most important in transfer pricing.²⁸⁷

The valuation method for the case SKCS and MRCS must be able to give some reasons how it has been chosen and, preferably, why it is better than any other method. However, complete comparison of chosen method is not necessary to do. For tax purposes, the level of valuation should be that the tax authority does not have to apply the transfer pricing adjustment under Article 31 of the VML and Article 9 of the OECD Tax Convention to taxable income. The interpretation of arm's length principle should be as rather positive

²⁸⁶ Raunio & Karjalainen: 100

²⁸⁷ Kukkonen & Walden: 200

interpretation than negative, because it is very challenging or even impossible to define absolute valuations for intangible assets, especially when it is an unfinished. Also, the price of SKCS and MRCS in transfer pricing must be at a level that cannot be regarded as tax evasion and any involved participant in the transfer pricing arrangement would receive an unnecessary tax advantage.

By carefully documenting the transfer pricing, applying for a preliminary ruling from the tax authorities and which comprehensively presents their own transfer pricing problem, legal protection will be provided against later disagreements, tax disputes and transfer pricing adjustments. However, the prerequisite for the protection of legitimate expectations is that the taxable person also acts as if he were presented acting in the preliminary ruling application. Furthermore, it is recommended to start using Pre-emptive Discussion with the Finnish Tax Authority to get some quick help for their transfer pricing issues, anyways. In case of international transfer pricing, the Cross-Border Dialogue procedure may come into issue.

In transfer pricing, it is always better to strive for a valuation, which follows arm's length principle, because overpricing and undervaluation may result in a transfer pricing adjustment. On the other hand, zero-pricing is not profitable, because exit tax can then come to the issue for the case organization. Apart from the transfer pricing documentation and cross, study gives a good clearance about legal rules, guidance and advices what case organization must consider before they start planning transfer pricing in national or international circumstances.

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APPENDIX 1. Compendium of cases

The Supreme Administrative Court

18.12.2018	volume 5979	KHO 2018: 173
13.09.2017	volume 4381	KHO 2017: 146
13.09.2017	volume 4830	KHO 2017: 145
18.2.2014	volume 493	KHO 2014: 33
4.3.2013	volume 755	KHO 2013: 36

APPENDIX 2. Questions for interview study of SKCS

Memorandum – SKCS algorithm

Date: 23rd of May 2019

Interviewees: Sales Manager, VP in Sales & Marketing, Product Manager

1. What kind of technology is SKCS?
2. How long lifetime SKCS technology has in its business industry?
3. How many SKCS technology license deliveries are expected to occur for the current year 2019?
4. How many SKCS technology license deliveries are be expected to occur for the year 2020?
5. How many SKCS technology license deliveries are be expected to occur for the year 2021?
6. How many SKCS technology license deliveries are be expected to occur for the year 2022?
7. How many SKCS technology license deliveries are be expected to occur for the year 2023?
8. How much license income the SKCS will generate for the year 2019?
9. How much license income the SKCS will generate for the year 2020?
10. How much license income the SKCS will generate for the year 2021?
11. How much license income the SKCS will generate for the year 2022?
12. How much license income the SKCS will generate for the year 2023?
13. What kind of costs an individual SKCS license delivery generates?
14. How much direct material and personnel costs SKCS generates from individual delivery?
15. How much direct delivery, installation, user training, maintenance or any other costs SKCS could generate from individual license delivery?
16. How big markets SKCS has and what it is its market potential nowadays?
17. How long license agreements is about in SKCS?
18. What do you know about competitors and their corresponding products or technologies?

APPENDIX 3. Questions for interview study of MRCS.

Memorandum – MRCS algorithm

Date: 21st of May 2019

Interviewee: Sales Manager

1. What kind of technology is MRCS?
2. How long lifetime MRCS technology has in its business industry?
3. How many MRCS technology license deliveries are expected to occur for the current year 2019?
4. How many MRCS technology license deliveries are expected to occur for the year 2020?
5. How many MRCS technology license deliveries are expected to occur for the year 2021?
6. How many MRCS technology license deliveries are expected to occur for the year 2022?
7. How many MRCS technology license deliveries are expected to occur for the year 2023?
8. How much license income the MRCS will generate for the year 2019?
9. How much license income the MRCS will generate for the year 2020?
10. How much license income the MRCS will generate for the year 2021?
11. How much license income the MRCS will generate for the year 2022?
12. How much license income the MRCS will generate for the year 2023?
13. What kind of costs an individual MRCS license delivery generates?
14. How much direct material and personnel costs MRCS generates from individual delivery?
15. How much direct delivery, installation, user training, maintenance or any other costs MRCS could generate from individual license delivery?
16. How big markets MRCS has and what it is its market potential nowadays?
17. How long license agreements is about in MRCS?
18. What do you know about competitors and their corresponding products or technologies?